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FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

Vol. 86, No. 4 APRIL, 1933 Member A.B.C.-A.B.P.

A Fire Station in Long Beach, Cal., was Demolished by the Earthquakes that Shook Southern California

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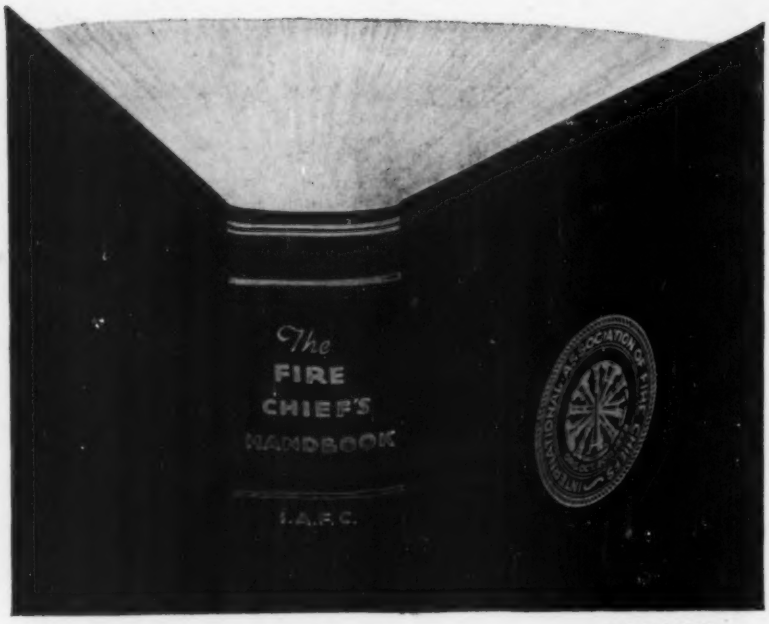

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By FRED SHEPPERD

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The Journal of the Fire Protection Profession Since 1877

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To Beer or Not to Beer—

NOW that the good old suds are back, up comes the inevitable question, "Shall firemen be permitted to drink beer while on duty?"

● There seems to be a difference of opinion, notwithstanding the government's decree that the 3.2 stuff hasn't a kick in a carload; and it looks like fire chiefs will have to decide pretty much for themselves.

● As a means of airing the views of fire officials, this question will be discussed in the Round Table Section of our next issue. It certainly ought to be interesting—don't miss it.

● Send us your own opinion for publication. We'll be mighty glad to have it—the more the merrier.

The Publishers

P.S.—Just had our first bottle. Not bad at all!

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The Chief knows his men are

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THERE NEVER was a Fire Chief yet who didn't keep uppermost in his thoughts the safety of his men, the security of their families.

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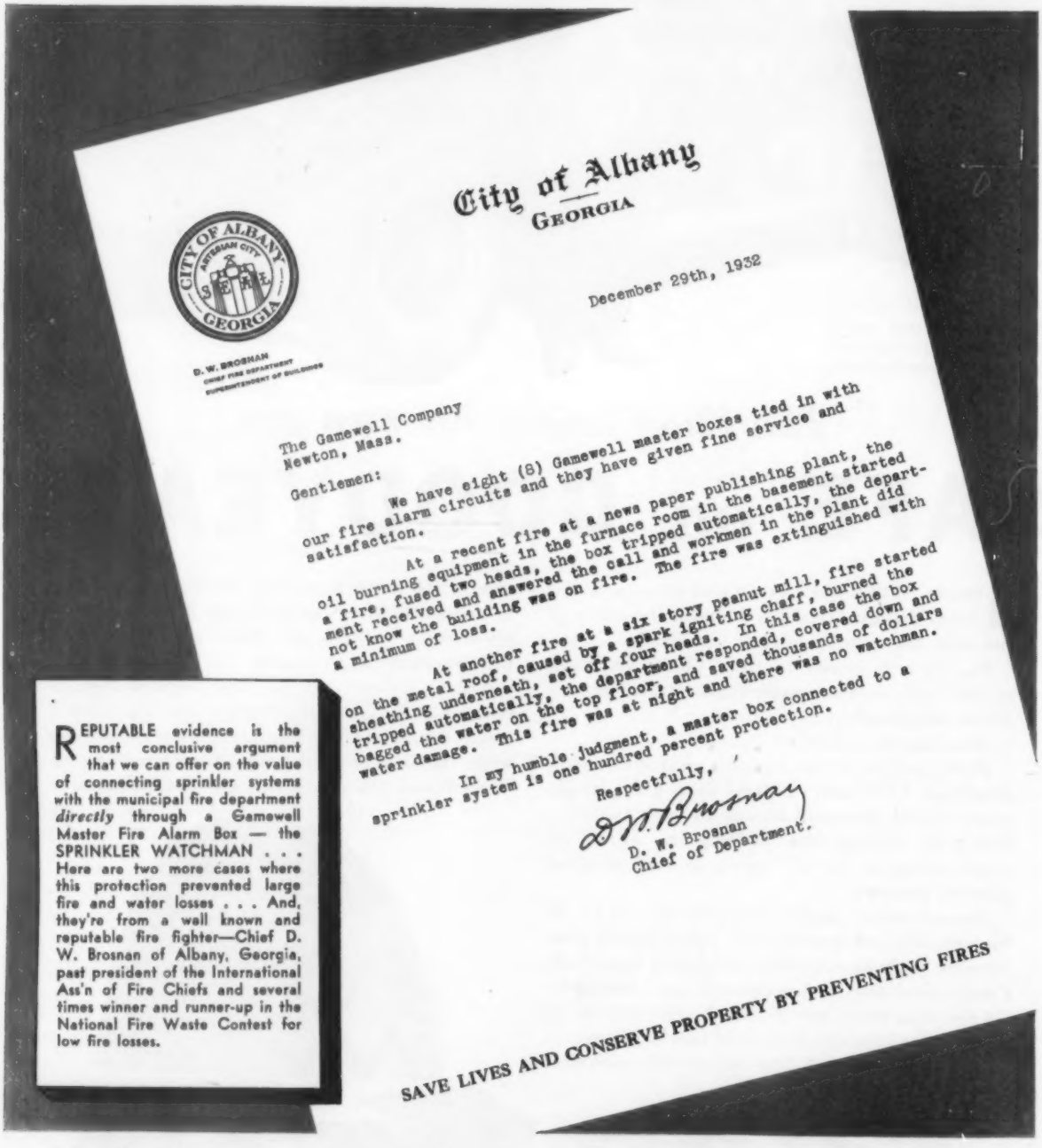
***Chief Brosnan cites 2 more cases proving the value of* CONNECTING SPRINKLER SYSTEMS *to* MASTER FIRE ALARM BOXES . . . .**



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December 29th, 1932

D. W. BROSNAN
CHIEF FIRE DEPARTMENT
SUPERINTENDENT OF BUILDINGS

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Gentlemen:

We have eight (8) Gamewell master boxes tied in with our fire alarm circuits and they have given fine service and satisfaction.

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At another fire at a six story peanut mill, fire started on the metal roof, caused by a spark igniting chaff, burned the sheathing underneath, set off four heads. In this case the box tripped automatically, the department responded, covered down and bagged the water on the top floor, and saved thousands of dollars water damage. This fire was at night and there was no watchman.

In my humble judgment, a master box connected to a sprinkler system is one hundred percent protection.

Respectfully,

D. W. Brosnan
Chief of Department.

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The Journal of the Fire Protection Profession

Volume 86 APRIL, 1933 Number 4

With the Editor

Incompetent First Aid?

In commenting upon the stand taken by Doctor J. R. McCurdy before the Pennsylvania State Medical Society relative to the use of inhalators by Police and Fire Department rescue squads, Dr. Wm. Brady, who writes syndicated articles for newspapers, made the following statement:

"These so-called emergency teams that go into training when some one provides an inhalator may mean well and might even be willing to serve even if there were no chance of having their picture published in the papers, but after all they are all ignorant men and by every reasonable test utterly incompetent to assume responsibility."

We are sorry indeed the Doctor is so unfamiliar with the makeup of Fire Department personnel today. We surely hope his knowledge of the medical profession is proportionately far greater.

Apparently he is not aware of the splendid work done by these very men whom he would hold up to ridicule. Many of his own profession might tell him of instances innumerable where lives have been saved by the "ignorant men" he so readily condemns. Possibly the Doctor is not acquainted with inhalators as manufactured at the present time. The approved type are practically fool-proof and it is difficult to vision a first-aid case where injury may result from the use of this equipment by a layman.

If it were possible for doctors to be available immediately in case of injury, it would, of course, be unnecessary for the layman to be trained in first aid. Certain types of injuries affect the body in such a manner that death may result before a doctor can reach the case. In this respect, asphyxiation, electric shock, drowning and strangulation are good examples.

Members of Fire Department first-aid rescue squads are always instructed to immediately summon a doctor (so business is not taken away from the profession, Dr. Brady) and in the meantime first-aid work is performed to keep the patient alive until a physician arrives.

Since both the laymen and the medical men are human beings there naturally will be some inefficiencies on the part of physicians as well as laymen. On the other hand, consider the case of a layman who has treated a number of cases with artificial respiration, as against a practicing physician who has never worked on an actual case and who was not given instruction in the same during his medical training. This may be particularly true of a doctor who took his training before the medical schools laid the proper stress on resuscitation treatment. As far as actual artificial respiration and inhalator treatment is concerned, the layman would be in a better position to administer it; the physician could aid by administering stimulants and then giving proper treatment after breathing has been restored.

The function of a Fire Department is to save life and property. It has enough to do in fighting fire alone, without going into first aid work. However, the sacrifice in time and effort needed to gain knowledge in first-aid work is readily made by members of Fire Departments solely in the desire to further serve the public. They ask no recompense for this work; they expect none.

It is unfortunate that a member of the medical profession should take such a narrow view of this fine activity as does Dr. Brady; and still more unfortunate that he should broadcast his personal prejudices nationwide.

But there is hope. Fire Departments are doing first-aid work on an increasing scale, and Dr. Brady must sooner or later, through contact with the splendid first-aid work Fire Departments perform, realize the error of his early judgment.

Fred. Shepperd

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Lieut. Maurice M. Clement, Long Beach Fire Department, tells what happened

When the 'Quake Hit Long Beach

EARLY in the afternoon of March 10, Long Beach, Cal., was typical of the average California city. At about five minutes to six, "hell broke loose." That is a concise statement of what happened.

You can get a better picture by absorbing a few pertinent facts. The population of Long Beach is about 150,000. The personnel of the Fire Department numbers 223. There are twelve fire stations. Apparatus includes 12 pumping engines; one 85-foot aerial ladder, one city service ladder truck (obsolete and out of commission) two combination chemical and first aid trucks, one chemical truck, and one foam truck.

Headquarters Station, No. 1, was a two-story brick structure, built in 1906. Along the east side is a one-story row of offices that is headquarters. At the northwest corner is a one-story structure housing the alarm system, vintage of 1906. It is a four-circuit Gamewell system.

With that first rending, twisting shock of the earthquake, the heavy cornice capstones on No. 1 Station came crashing down through the roof of the fire alarm bureau onto the storage batteries.

Telephone Service Disrupted

The alarm operator immediately called all stations over the P.B.X. board and found but two of the twelve with phone service. Meanwhile at Station No. 1, the entire second floor front wall came tumbling outward accompanied by the cornice, the fire wall and a twelve-foot balcony. Men frenzied with fear were sliding the pole and rushing outside only to be felled by the falling masonry. One man stepped out a window to the balcony and was hurled to the ground, when the balcony gave way under the terrific load of tumbling brick and stone. Frantic rescuers pulled those struck free of the debris before the dust cloud had fairly raised, and the six injured were rushed to hospitals.

At Station Five the same thing happened on a smaller scale. Fortunately only one man was injured here. Upstairs in the squad room, a fireman was sitting with his chair tilted against the rear wall. The first shock threw him into the center of the room, and the second shock took the whole rear wall out, and with it, the chair in which he had been sitting a moment before.

Picture conditions! The alarm system is out. Only two stations can be reached by telephone. Fires are breaking out in a dozen places over the city. Most fire stations have a pile of debris before the front doors, and the apparatus is inside.

Men Follow Own Initiative

The department is mighty proud of the manner in which the men on duty carried on during those first thirty minutes. Every piece of apparatus was driven out of the crumbling stations without casualty or breakdown, although in several instances the wreckage over which they had to drive was piled almost three feet high.

Fire Razed the Huntington Park High School

Then the men went to work. Rules and regulations were forgotten; procedure was thrown into the discard; precedent meant nothing, for there was no such thing. In a twinkling each company commander became chief, with decisions resting on his shoulders. St. Mary's Hospital, an old frame structure, was evacuated of its patients by Engine 3. The company then raced to Poly High School where fire had broken out in the chemistry laboratory. Engine 7 dashed to the oil fields where three derricks had fallen blazing across Atlantic Avenue. Two other school houses, the Continental Baking Company plant, and several other structures were afire, and every one was handled by the nearest fire company called either by messenger or directed by a glowing sky.

By this time, the entire off-shift had reported, and were manning reserve and auxiliary equipment as well as augmenting the crews still fighting the three major fires.

Sailors and Marines on Duty

Within two hours a great change had taken place in the city. Sailors and Marines from the U. S. fleet at anchor in the roadstead were on duty at every intersection in the city. Military men were fully armed, and with orders to shoot to kill at the first sign of looting. The Los Angeles Fire Department sent three pumping engines, one hose wagon, three ladder trucks, a searchlight truck, a wrecking truck, a bulldozer, all fully manned and in command of an Assistant Chief and a Battalion Chief. Huntington Beach sent one of its two pumping engines to protect the Naples district which is reached by a bridge, the approach to which had sunk so low as to make the district inaccessible to Long Beach apparatus. Newport Beach sent a pumper over the inland road into the city. Five members of the San Bernardino Fire Department, two of them Captains, reported for duty. Retired fire officials, anxious to help, came to headquarters. Radio Pictures, Inc., of Hollywood, sent two massive portable generators and sixteen sun arcs to assist in the night rescue work.

From every hand came assistance and offers of assistance. Post 27, American Legion, turned its new clubhouse into a morgue, and one of the first victims to be taken there was Lieutenant Ab Stephens, commander of Ladder Truck 1, who died shortly after reaching the hospital following the crash at Station 1. The National Guard armory was pressed into service as a first aid station. From all Southern California came

motorcycle officers, ambulances, doctors and nurses, and there was ample work for everyone.

The night was made hideous with the constant eerie shrieking of sirens, as emergency vehicles rushed through the fog-laden night.

Fire apparatus was kept constantly on the move answering fire calls and pulling bodies out of wreckage.

Of the next few days, nothing need be said, for the story of major disasters is ever the same. Following the initial shock, whether it be an earthquake, a flood, a tornado or a conflagration, there is a period of readjustment that gradually carries itself back to normalcy.

Chief Scott Rushed Aid

Those who came to our assistance, we shall never forget, notably the Los Angeles Fire Department, under Chief Ralph Scott, whose resources were so great and so adequate. Day and night their crews worked alongside our own pulling down toppling chimneys and dangerously hanging walls, dragging steeples from their insecure foundations. After they had withdrawn their apparatus, they sent us thirty men a day for three days to engage in inspection work with the Fire Prevention Bureau. The fact that the municipal gas system had been shut off two minutes after the first shock sent people scurrying for heating and cooking stoves of any and all descriptions. Many of these were highly dangerous, and the inspection of homes averted many fires.

Much could be written about the other departments of the city, but this is the story of the Fire Department.

The lessons learned by the tragedy were many. Let me enumerate some of them briefly. Fire walls, extending as they do from one to six feet above roofs, caused a great part of the damage. They may have some virtue in preventing the communication of fire from one building to another, but I seriously question the wisdom of their use. It is impossible to tie them in properly, consequently, they are the first portion of a building to fall.

Some Recommendations

Marquees—Those beautifully elaborate sidewalk coverings to be found before the lobbies of theatres, hotels and other public structures are death traps and should not be permitted.

Brick—The use of brick in the construction on schools, fire stations or any other public or semi-public buildings is nothing short of criminal. Had the earthquake arrived three hours sooner, thirty-thousand school children would have come rushing from class rooms, hundreds of them to their deaths. Remember that most of our school buildings were brick structures, and today, most of them will have to be demolished. Likewise, four brick fire stations have been leveled, while two stood the strain with little visible damage. The others are frame, or frame and stucco.

Cornices—The use of heavy masonry cornices in a country known to be subject to earth movements I also class as semi-criminal. Many of the deaths—and there have been 52 in Long Beach alone at this writing—were directly due to falling masonry cornices.

Building Codes—The inadequate building codes that permit mortar formulas considered by experts as not being of sufficient strength to actually hold brick walls together can be blamed for much of the destruction. An investigation by the *Los Angeles Examiner* revealed that mortar used in ten out of thirteen school buildings investigated was mostly sand.

Architectural Jimcracks—There has been too much external beauty at the expense of internal safety. Domes, towers, parapets, facings, cornices, marquees, heavy signs, etc., may be architecturally beautiful, but they have been found to have dealt death with a lavish hand not only in Long Beach, but in Santa Barbara and San Francisco.

There is a great hulabaloo about sterner ordinances, more rigid inspection, and less flexible building codes, but where are the lessons learned in San Francisco in 1906? Were all the expert inspection tours to Santa Barbara in 1925 mere junkets? The horse has been stolen, so now they lock the barn. And the lesson cost more than 100 lives. Rather expensive!

Long Beach was not the only community that suffered from the earth movement. There is Compton, Lynwood, South Gate, Hynes, Clearwater, Artesia, San Pedro, part of Los Angeles, and, in lesser degree, Seal Beach, Santa Ana and other communities.

As this is written, minor shocks are being felt. The experts say these will continue for several months as the slip in the formation adjusts itself to its new position.

A Headquarters Station Under Canvas

A circus company loaned Long Beach this large tent to house five pieces of fire apparatus until permanent quarters will be secured. The crews are housed in army tents at the left and rear of the big top. Lieut. Clement is standing on the running board of the squad car.

Rehabilitation goes forward. Frightened residents are moving back into their homes. Food lines are disappearing. Condemned buildings are being razed. Building permit totals grow daily. The streets are cleared of debris. Stores and other business establishments are opening for business as fast as repairs can be effected. Four Long Beach fire companies are housed in tents where they will remain until new stations are built. Harrowing scenes and incidents are locked in memories, to be hauled out in squad room reminiscences.

We have done our duty, and we carry on.

Fire Brigade for World's Fair

Fourteen firemen who served in two Chicago fire insurance patrols that were disbanded, started duty in the private Fire Department of the Century of Progress, otherwise called the World's Fair.

The department is in charge of John C. McDonnell, retired First Deputy Fire Marshal of the Chicago Fire Department. He has served in this department for forty years and at the time of his retirement in 1924, was in charge of the Fire Prevention Bureau.

A Simple Explanation of the Construction and Operation of

Fire Hydrants

This is the fourth section of an article which describes some of the more common makes of fire hydrants.

By N. N. WOLPERT,
Assistant Editor,
Fire Engineering

HYDRANTS are comparatively simple devices. They contain no complicated gears or combinations of machine forms. They are free from inaccessible parts, and yet few can honestly confess they understand the construction of fire hydrants.

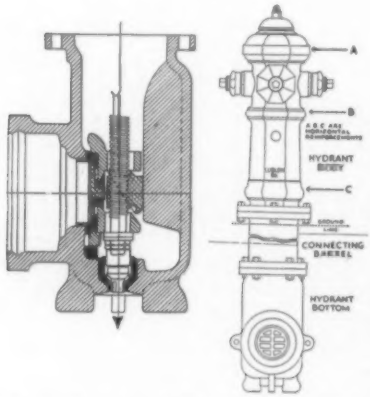
Primarily a hydrant is a pipe extending from the underground water main, plus a device for obstructing the flow of water so that water may be obtained when desired, and outlets to which the Fire Department may connect hose lines for its supply. Few devices can be simpler.

Hydrants, when properly installed, require little attention. As a guarantee of good service, they should be examined in the spring and in the fall, and each time that they have been used during freezing weather.

Just as in automobiles, there are various makes of hydrants on the market, and in many cities, it is possible to find several makes in use. An appreciation of the mechanics of all the leading makes is therefore advisable. In the two previous issues were described some of the common types of hydrants.

Ludlow Hydrant

The Ludlow Diamond hydrant (Ludlow Valve Manufacturing Company, Troy, N. Y.) has a slide gate hydrant valve with a locking device that prevents the flow of water in case the hydrant barrel is broken. The device operates the moment the gate is closed and the drip opens. It is released upon starting to open the hydrant.



Lower Section and Sketch of the Ludlow Hydrant

The drip valve is screwed to the lower end of the hydrant stem. It works in a cup set in the extreme bottom of the hydrant. It opens after the gate is closed and wedged, and closes before the gate is released. It never leaves the drip cup and revolves with every movement of the stem. Both the gate and drip valves are faced with rubber.

The hydrant body ends in a flange at the ground line. The hydrant has thicker metal at points A, B and C to reinforce the body horizontally. Stresses and dimensions have been calculated, the designers claim, so that in the event of impact, breakage will occur directly above the ground.

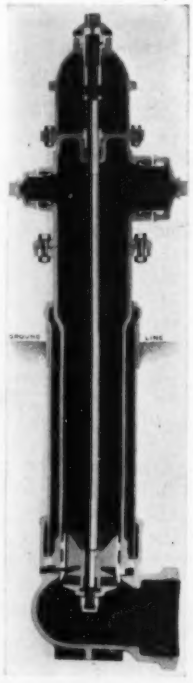
Then when it becomes necessary to replace the hydrant the bolts are loosened which connect the hydrant flange to the connecting barrel flange, the old hydrant body is taken off, the stem straightened or replaced, and a new hydrant body set in place.

The hydrant top and the nozzle caps have plain beveled surfaces, semi-phosphorus aluminated coated, to reflect light so that the hydrants are easily distinguished by the motorist and the approaching fire company.

Mathews Hydrant

The barrel of the Mathews Hydrant (R. D. Wood & Co., Philadelphia, Pa.) contains all the working parts. The barrel, complete with the interior mechanism, can be removed intact by unscrewing it from the elbow and withdrawing it through the protection case of the hydrant.

The operating nut is shielded to keep out moisture and dirt. The threaded portion of the stem is above water and may be oiled through a hole in the operating nut. A stop nut is provided to arrest the downward travel of the stem before it can strike the bottom of the elbow and cause the stem to buckle due to excess pressure.



Section of Mathews Hydrant

The nozzle direction may be changed by loosening bolts in a swivel flange which permits the hydrant head to be turned. This swiven flange, at the base of the nozzle section, enables nozzles to be faced at any point in the complete circle.

The drain valve, its guide and upper main valve plate are cast in one piece. It is rigidly keyed to the hydrant stem and moves vertically in connection with the main valve. The drain valve is faced with leather held in place by six copper rivets. The main valve is fastened securely to the hydrant stem and does not revolve. It moves away or toward its seat as the hydrant is opened or closed. The main valve is built up of several layers of leather. The main valve assembly is cone-shaped to

cause a gradual opening or closing of the hydrant and the elimination of water hammer.

When a hydrant is broken, the head is removed so that workmen can get at the lower part. A tubular lug wrench is slipped down over the barrel to engage four heavy lugs that are cast on the outside of the barrel at the base. The broken barrel is unscrewed from the elbow and the lower end of the broken hydrant is removed. A new hydrant, complete, is inserted and screwed into place. The bolts on the swivel flange are then loosened and the revolving head turned so that the nozzles are facing in the proper direction. The bolts are tightened and the installation is completed.

A special extraction tool has been designed for removing broken barrels of the older type of Mathews hydrants.

The manufacturers claim that with this type of product, the entire job of removing a broken hydrant barrel and replacing it with a new one, can be done in about thirty minutes without recourse to digging.

(To be continued)

FIRE SERVICE PROVES ITSELF AT RECENT CALIFORNIA EARTHQUAKE

Many Buildings Razed—Gas and Electric Supply Immediately Shut Off to Prevent Conflagration — Huntington Park High School Burned

EARTH tremors that were felt in Long Beach, Cal., and in surrounding cities, caused the death of 127 persons and property damage estimated at from $30,000,000 to $45,000,000 when a series of shocks which started on March 10, shook buildings and caused the collapse of those of weak construction. The first tremor was felt at 5:54 p.m., and a shock that caused buildings to roll came at 10:59. A strong shock was reported at 12:55 a.m. Saturday.

The Southern California area that received the greatest damage extended from Inglewood, Compton, Watts, a small section of Los Angeles, Huntington Park and Whittier on the north, to Anaheim and Santa Ana on the east, Balboa on the south, and the Pacific coast cities of Long Beach, Sunset Beach, Huntington Beach and Newport.

Because of the danger of fire, the gas supply of Los Angeles was shut off. The water supply and the power lines were but slightly damaged.

In Compton, practically all of the city's 3,000 structures were either razed or were severely damaged. In Huntington Park the damage may exceed $2,000,000. Practically every business building in the city suffered, and the high school auditorium was destroyed by fire. A special force of building inspectors were sworn in to examine the damage in buildings still standing. In Santa Monica city water trucks were ordered filled when it was reported that the Long Beach water supply had been condemned. All gas and water mains were reported undamaged. In South Gate quick action on the part of American Legionnaires in turning off the main source of electric and gas service is credited with saving the city from fires.

At Long Beach, a fire station at Third Street and Pacific Avenue (see cover illustration) was badly damaged by the tremors.

At Huntington Park fire broke out in a dozen buildings following the earthquake and all of the local Fire Department was called. Aid was rushed from Los Angeles. Several hours after the first shock, Huntington Park sent out calls for assistance when a fire in the local high school developed to serious proportions. The building was destroyed.

Efficient work by Fire Departments and cooperative efforts of other departments and the citizenry prevented any blaze from assuming conflagration proportions. This is to be marveled at when one makes a mental survey of the large amount of combustible material in the area affected.

A survey was started immediately to determine the condition of school buildings in the shocked district. In a report submitted to the Board of Education, thirty-five schools in the Los Angeles district were considered badly damaged. Of the forty-two public schools in Long Beach, constructed at an estimated cost of $7,900,000, ninety per cent were out of commission and about forty per cent will have to be rebuilt. A survey of the destruction showed that school buildings suffered more than any other classification of structures. Had the first major tremors come a few hours earlier, there would have been a large loss of life among the school children and many more would have been injured. In Los Angeles a large staff of inspectors and structural engineers examined the damaged buildings. At Watts the city hall was completely demolished.

Agitation has been started to secure legislation which will require stronger buildings designed to withstand such earth tremors. Old Spanish missions of Southern California which have withstood previous earth shocks, came through the most recent one without appreciable damage.

Hannon, Deputy Commissioner, Dead

Joseph M. Hannon, for thirteen years First Deputy Fire Commissioner of the New York Fire Department, died in his apartment at the age of fifty-six as the result of double pneumonia. He was an intimate friend of former Mayor James J. Walker and was best man at his wedding.

He served as Alderman from the Greenwich Village Section from 1910-1917, and for a short time was clerk in the Municipal Court. Mr. Hannon was appointed First Deputy Fire Commissioner in March, 1920.

Mr. Hannon was a bachelor. He is survived by his brother, John J. Hannon, a marine engineer in the Fire Department, and two sisters.

Rhode Island Chiefs Meet

A meeting of the Fire Chiefs' Club of Rhode Island was held in Providence, the evening of March 9. A. R. Stevenson of the General Electric Company, gave an illustrated lecture on "Refrigeration and its Effects." He described the operation of electric refrigerators and the effect of fire on the motors and gases.

Rev. Norris T. Morton, Chaplain of the club, paid tribute to the memory of the late George Hunt, former Fire Commissioner of Providence, who died in January. He spoke on the career of Chief William E. Titus of Pawtucket who was retired by a new City Council. Chief Titus has fifty-eight years of service and he was replaced by Napoleon Taupier.

Walter A. Henry, of Warwick, was elected to active honorary life membership. A number of new members were admitted.

Fire Marshals of Alabama and Tennessee held a conference to try to end the operation of an organized arson racket that has been flourishing for seven years. All but three of the fourteen members of the gang have been taken into custody. The ring is believed to have set fires in fifteen states and to have collected considerable in insurance.

Meeting of the N. J. Municipal Signal Association

The annual meeting of the New Jersey Municipal Signal Association was held at Kearney, N. J., on January 19 with George Smack, retiring President, as host. William McKenna, Chief Electrical Engineer, Jersey City, read a paper on installing a fire alarm central office with a municipal force, and he gave a demonstration of fire alarm circuits with a ground return. Paul Horni spoke on large and small rectifiers for fire alarm and police telegraph circuits. The new officers are Joseph Geiger, Bayonne, President; Jay Frank, Perth Amboy, First Vice-President; Al Ahlert, West Orange, Second Vice-President; Harold Bond, Milburne, Financial Secretary; Frank Dolan, Jersey City, Recording Secretary and Harry Hilbrandt, Jersey City, Treasurer.

THE ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

PLANS USED FOR DRYING FIRE HOSE

USING fire hose is similar to using dinner china. After it has served its purpose, then comes the washing and drying processes.

Fire hose must be washed and then carefully dried before the hose is rolled and put away. If the hose is put away while wet, mildew will form which will rot away the hose, and shorten its life.

Hose is dried by means of hose drying towers, single or double hose racks, and in the warmer sections it is even dried by stretching the hose out in front of the fire station.

In the box on this page is the problem in full that is described in this issue. Due to the large number of chiefs who contributed to this discussion, it will be continued in the June issue. Should you care to send your experience, you are invited to write to the "Round Table Editor," FIRE ENGINEERING, 24 W. 40th Street, New York, N. Y.

Discussion of the Question

George E. Bancroft, Chief, Auburn, Me.: We use a washing machine and tower for the care of fire hose. Upon return from a fire the hose is sent to the basement of the Central Station. There it is unrolled, and the couplings caught together enough to hold while the hose is being hoisted to the first floor. After coupling, the hose is drawn through the washing machine, which is a hollow sleeve pierced on the inside by small holes so that the pressure of the emerging water is most effective in cleaning the hose as it passes through.

The hose is drawn through the washer by an electric motor (located at the top of the tower) to the first floor where it is broken into single lengths, thence to the tower where it is suspended on hooks by the male end.

We find this method very satisfactory. The motor performs the task of hoisting which we formerly did by hand, this being a great relief to the men returning from a fire in a tired condition. It is also possible to do the work with a small crew if it ever becomes necessary, as the labor is greatly minimized by the equipment.

The hose is allowed to remain in the tower about three days. It is then under ordinary conditions dry enough to take down and store in the metal lined bin we have for that purpose. The tower is built right into the station so that the temperature is the same as that of the station. In warm weather, windows in the top of the tower are opened, thus creating a circulation of air which serves to give the same results as the heat gives in colder weather.

Wm. H. Arnold, Chief, Canonsburg, Pa.: We have a vertical tower built of brick 6 x 8 feet square, 57 feet high, with a small heater type ventilator, one in each side wall at the top of the tower. The brick tower is much better than wood, because of heat and moisture conditions in different kinds of weather—the hose does not dry too quickly. This tower has a capacity of 50 sections of 2½-inch fire hose in 50 foot sections.

The hose is strung by clamping the coupling at the top of the tower, leaving the hose hanging full length, which allows the air to pass through like so many flues in a boiler.

A steel ladder the length of the tower inside, a platform at the top, and a single line pulley, completes the equipment. Hose may be loaded or unloaded direct from the hose tower.

We have had some experience with a basement sloping rack drier, as well as a double rack drier, the latter being made for lack of space. The hose was laid on the top rack and doubled at the end and continued back on bottom rack, and did not prove very successful, as we had trouble with our hose becoming mildewed. It did not get enough air to dry it thoroughly and the fabric became flimsy and the inside rubber jacket decayed.

In planning a fire department quarters I would advise a vertical type hose tower where hose after being thoroughly washed and hung full length will dry very quickly, both inside and out. The first cost is the last cost, and any fire department will in time pay for the tower, for a few sections of hose lost is no small figure.

Herman Amish, Iowa City, Iowa: We have a hose tower for drying fire hose. It is very essential that the hose been used as well as after the periodic washing. After been used as well as after the periodic washing. After every fire we inspect each section of hose for detection of injuries done in service. The points that should be observed are as follows: scorched jacket, oil or grease, frozen strands, chafed or worn parts, cuts, and acid indications. The hose tower we have is 40 feet high and 8 feet square with plenty of ventilation for summer drying. For winter drying, we have a steam radiator underneath the floor of the tower. The floor of the tower is made up of 2 x 4-inch timbers spaced one inch apart so that water dripping from hose in the tower drains off to the sewer. The reason for putting the radiator underneath the floor is to eliminate the danger of hose coming in contact with hot pipes or radiators, as such would be very dangerous to fire hose.

Each length of hose is hung up at the center point of the section by laying it over a block of wood four inches in circumference. This keeps the hose from kinking and leaves both couplings, male and female, hanging down.

If we were to consider hose drying equipment, it would be the tower type installation such as we are now using. Once hung in the tower, the hose requires very little attention.

W. N. Bates, Chief, Elyria, Ohio: We drain and dry our fire hose in hose towers by hanging it over a semi-circular carriage at the middle of the section. After drying, each section is rolled and stored away for future use.

We do not believe this to be the best method, as hanging each section full length in towers is preferred, or secondly, full length on inclined racks. It

HERE IS THE PROBLEM

What plan do you use for drying fire hose?

In what way has weather conditions an effect on this arrangement?

If you were to consider hose drying equipment, what type would you install and why?

is our belief that hanging the hose sections in the middle has a tendency to weaken them at that point.

Our hose towers have some natural ventilation and are kept from freezing by the heat in the building. We do not dry hose in the hot sun nor near heated radiators. Hose on the apparatus is changed once a month, and if not used, water is run through it quarterly.

P. M. Cogan, Chief, Omaha, Nebr.: We have used drying racks installed in the basements of our stations. These are built so as to allow complete drainage.

In winter, heat radiated through and around racks aids in drying. In summer, ventilation and outside drying and cleaning is used. Same racks can be used the year around.

Our experience with this type of rack where hose is laid lengthwise has proven that hose is not abused or stretched in the drying process. The above method is therefore recommended.

Albert C. Melendy, Chief, Nashau, N. H.: Fire hose in our department is dried in the hose tower which we find very satisfactory. Drying racks have been used, but we do not think they are very practical as hose dried in this method does not last as long as that dried in a tower.

By drying hose in the tower, the air is allowed to circulate inside and around the hose, whereas the hose lying on racks is not aired so freely. Hose dried in towers will last from ten to twelve years, while the life of that dried in racks will be from six to eight years.

Chas. A. McGinley, Chief, E. Orange, N. J.: Brick hose towers, built specially for drying hose are employed by this department. Such a plan has a good effect, due to the fact that our towers are steam heated and have windows for ventilation. In winter, steam heat permits the proper drying without weather conditions interfering in the least. In summer, likewise, windows can be opened or closed as desired. Towers for hose drying are ideal in my opinion because of the facts mentioned, also because a free circulation of air may pass through and around the hose at all times while hanging in tower, allowing hose to dry thoroughly.

My selection of hose drying equipment would be the hose tower, first, because of the above mentioned facts; secondly, because it is not necessary to equip every engine house with hose drying facilities. One large tower is sufficient for a department of 8 or 10 companies.

W. F. Hall, Chief, Plainfield, Conn.: We dry our fire hose on the roof of the building which houses our truck as it is flat with just enough pitch to properly drain the hose.

Due to rainy weather, it is sometimes necessary to leave the hose out from three to four days before it is properly dried. This sometimes necessitates the loading of hose before going to a fire, although we never leave the truck without some hose (500 feet or over). Many of our calls are out beyond hydrant service and we generally have to depend on wells, brooks or ponds for a water supply; thereby often requiring eight or nine hundred feet of hose.

If a change were to be made, I would prefer a hose drying rack located inside the fire house of sufficient size to accommodate five hundred feet of hose. This type of rack permits a 50-foot length of hose to be laid out and drained, the angle of slope of double rack being first in one direction and then reverse with the same slope as the top portion of the rack.

Wm. J. Lutz, Chief, Wilmington, Del.: Each of our ten fire stations has a hose tower. Hose is changed without delay upon returning from a fire where the same has been in service.

Weather conditions have no effect on the hose in the tower, as all hose is changed every two weeks, whether it has been in service or not. It is taken to a hydrant and water run through it, the outside being cleaned at the same time.

Our latest hose tower constructed is 32 feet high and about seven feet square. Hose is laid over a 36-inch diameter by 6-foot drum to dry, eleminating the necessity of hanging it up by couplings to dry.

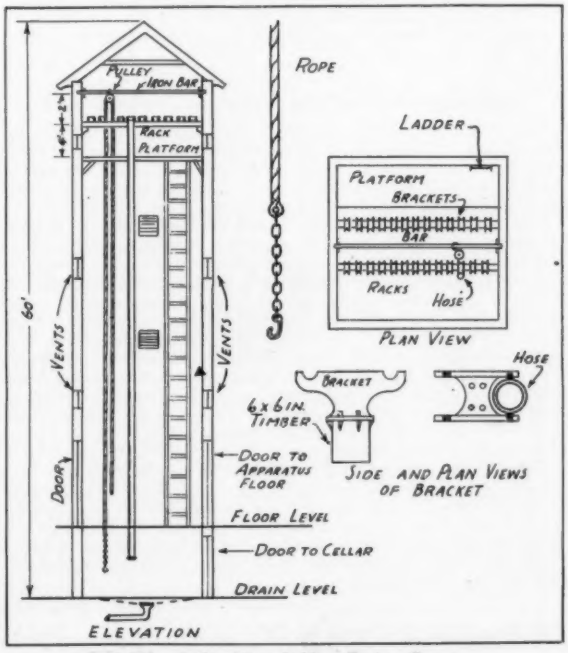
James T. Cranney, Chief, Missoula, Mont.: The system that I use in drying our hose is obsolete, but due to a shortage of room, it is the only way possible. We have an inside hose tower with a block and tackle arrangement for hoisting. A sling is attached at approximately the middle point of each section, and with the aid of a truck is pulled into the tower, leaving the two ends hanging through a hole which leads into the boiler room.

I believe that weather conditions are very bad for drying hose in this manner, chiefly because when the hose is frozen stiff and a block and tackle is used with the aid of a truck, it has a tendency to loosen the rubber lining. This shortens the life of the hose.

If I were to consider new hose drying equipment and had the necessary room, I would by all means have an inclined rack inside the building. My reasons for this kind of hose drying apparatus are twofold: It eliminates all unnecessary strain on the hose due to the hoisting method and preserves the inner rubber lining, thereby prolonging the life of the hose.

John J. Towey, Chief, Newark, N. J.: In the drying of all hose in our department, we use what is known as the "vertical drying method." This is done by hanging wet hose on racks which are built into hose towers erected for this drying method. All hose towers are built of sufficient height and size to accommodate at least 40 lengths of ordinary 2½-inch hose, 50 feet long. Each tower is equipped with manually operating ventilators, which are placed on all sides of the towers at different heights. In warm weather these ventilators can be kept open in order to furnish a free circulation of air while hose is being dried. In cold weather the towers are steam heated by means of a series of wall radiators, which, with partly opened ventilators furnish enough heat for drying purposes.

In the top of all towers an iron bar is placed horizontally to which a pulley and rope is attached and so arranged to have pulley slide freely across this bar. The rope and pulley are used to hoist or lower all lengths of hose. Two feet below this bar is placed a series of racks on which special made iron brackets are fastened, each bracket being able to hold two lengths of hose. Four feet below these racks a platform is built, on which a man can stand with ease to hook or unhook the hose. To reach this platform an iron ladder is fastened to the side of the tower. An electric bulb is placed above the iron bar to furnish light while working in the tower. Floor drains, connected to sewers, are placed in all towers. An inner door leading to apparatus floor can



Details of the Newark Hose-Drying Tower

BEER IS HERE!

Should it be permitted in fire stations?

The next round table will be an interesting discussion of its relation to fire department administration.

be used during cold weather periods to hoist or lower hose, and an outer door leading to street or yard can be used in warm weather. All such towers are at least 60 feet in height, beginning at drain level.

All hose dried in this way cannot be effected by weather conditions, since the ventilation and heating systems in these towers can be regulated to suit all conditions. All hose hung in this manner will dry more quickly as it gives the air a chance to pass through the inner and also outer jackets at the same time.

Some of the other methods used, such as placing of hose on horizontal racks along wall radiators or suspended in loop form from wall brackets, will not give good results. In these methods the hose jacket is only being dried from the outside, kinks are formed, and, there is danger of too much heat from radiators to rubber jacket. It is therefore my opinion that hose dried by means of these towers assure longer wear, and a quicker and more thorough process of drying.

Patrick J. Hurley, Chief, Holyoke, Mass.: Our department has both racks and towers for hose drying. For easy handling, such as cleaning and drying, the tower is preferred, but we do believe that the rubber is short-lived by too much drying. With the rack, hose is not so handy to clean and handle. It does dry the fabric and leaves the rubber moist, which is of great benefit to it.

In drying hose on racks, care should be taken to prevent water from lodging at the couplings, as a sulphuric acid may form from it, and this acid dropping on the fabric is very injurious to the hose.

Geo. E. Wallace, Chief, Modesto, Cal.: We use a 50-foot all-covered steel tower for drying fire hose. We have no trouble with weather conditions, except in the hot weather at summer time. We change the hose from all trucks every month, washing and hanging same. In this way we are able to keep our hose in good condition.

If we were to consider the installation of hose drying equipment, it would be a tower, because the air will circulate around and through the hose better than if put on racks and laid flat. Hose needs plenty of air when drying. We do not permit hose to remain in the tower very long, but take it down and roll up as soon as dry, and pile it on a raised platform.

Wm. Ziegler, Chief, Hackensack, N. J.: We clean our fire hose by laying the lengths on the concrete driveway in favorable weather and on the floor inside the building in colder weather. It is then sprayed with a stream of water from a ¾-inch line and then scrubbed. After a thorough cleaning the sections are hung in the hose tower until completely dried out, then taken down, rolled, and stacked ready for use.

Weather conditions have no effect on this arrangement other than causing the cleaning to be done on the inside during unfavorable weather conditions.

Mid-Hudson-Harlem Valley Chiefs Meet

The regular meeting of the Mid-Hudson-Harlem-Valley Fire Chiefs' Association was held under the auspices of the Brewster Fire Department at Odd Fellows' Hall in Brewster, April 1. About sixty members sat down to supper at seven, after which the regular business meeting was held.

The Educational Committee, under Chief Noll, of Poughkeepsie, introduced several speakers, among whom were Mr. Logan of the American-LaFrance and Foamite Corporation, who gave an illustrated talk with motion pictures on "The Production of Rubber and Long Fibre Cotton in the Manufacture of Fire Hose" and also showed a motion picture showing the effect of foam and carbon dioxide on various types of fires, which was highly instructive. Captain Dawkins, of the Port Chester Fire Department, gave a practical demonstration of flood lighting equipment. Chief Drake spoke briefly on "Educating the Public with Home-Made Posters" and showed a number that have been used in the vicinity of Clinton Corners.

Chief Noll outlined the work of the coming summer fire school in Poughkeepsie, which is to start May 8, at Engine 7, at which new features will be inaugurated for more intensive training of the volunteer firemen of the vicinity. Chief Berger, of Beacon, invited the association to meet at Thompson Hose, in Beacon, at its June 3 meeting, which invitation was accepted.

William Patrick Payne is Chief of the Spokane, Wash., Fire Department. A brief biography appeared in the March issue but through an error, his name was printed, "Jayne."

Hawkins of Haverhill to Retire

Chief William H. Hawkins, of the Haverhill, Mass., Fire Department, has asked to be retired on pension, the retirement to take effect on December 1 next.

He is one of the best known fire officials in New England and is a Past-President of the Massachusetts State Firemen's Association. He is a member of the Fire Chiefs' Club of Massachusetts, the New England Association of Fire Chiefs, and the International Association of Fire Chiefs.

Chief William H. Hawkins

Trevitt Named Chief

Leroy Trevitt has been appointed Chief of the Fire Department in Framingham, Mass., as successor to the late Chief William Coulter.

Chief Trevitt is thirty-three years of age and has been in the fire department for seven years. He has been chief mechanic at headquarters. Before joining the Fire Department he served as a mechanic at the Center Garage and with the Boston and Worcester Street Railway Company.

HARRY BELKNAP.

February Fire Losses Low

According to figures made public by the National Board of Fire Underwriters, fire losses in the United States for February totalled $36,661,481, an amount which is $3,153,-141 or 7.94 per cent less than the fire losses for February, 1932. In January of this year the losses were $35,547,565 while for January 1932 the total was $39,224,783.

C. W. Pierce, Vice-President of the Continental Insurance Company calls attention to the fact that while the use of motorized fire apparatus and department efficiency have increased, fires have been spreading from point of origin to neighboring structures, and from one floor to another, causing destruction of about $30,000,000 worth of property. New York State is the chief sufferer from this class of fires. Its losses reached $3,850,000; losses of that nature in Pennsylvania, about $2,000,000; California, $1,787,000; Virginia, $1,700,000; Massachusetts, $1,600,000; Illinois, $1,500,000; Ohio, $1,355,000, and New Jersey, $1,197,000.

In dwelling house districts, much of the communicated fire destruction is due to inflammable roofs, according to Mr. Pierce, while in congested business areas, "exposure" fires, as a rule, enter through unprotected windows, doors and other openings.

M. Cook Member of Public Service Commission

Moie Cook, Vice-President and Sales Manager of the Boyer Fire Apparatus Company, Logansport, Ind., has been appointed a member of the Public Service Commission by Gov. Paul V. McNutt. The commission reorganization bill signed recently by the Governor requires that one of the three members shall be a Republican. Mr. Cook is the Republican member.

Volunteer firemen of Manteca, Cal., are planning to purchase fire apparatus for fighting rural fires.

New fire headquarters of East Orange, N. J., will be opened the first week in April. The station is L shaped and costs $163,000.

James T. O'Donnell, Chief of the Underwriters' Salvage Corps of St. Louis, Mo., has published the fifty-eighth annual report of his department, giving the activities for the past year. Many letters of commendation have been received commending the corps for its prompt and efficient action in minimizing property damage.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified

Sodium Nitrate Fire

To the Editor:

What is the proper method of extinguishing a fire in the hold of a ship loaded with nitre in mid stream?

K. C. E.

Answer: Sodium nitrate (also called chili saltpetre, chili nitre, soda nitre) is a white crystalline substance, containing nearly half its weight of oxygen which it readily gives up when heated with oxidizable substances. It does not burn itself, but being an oxygen carrier it assists in the combustion of other material. When melted it will set on fire any combustible material which it comes in contact. It is generally shipped in burlap bags containing about 200 pounds each, but it may also be found in tins and glass bottles. It is used in the manufacture of nitric acid, fertilizers, explosives, etc.

As it is an oxidizing material it will increase the intensity of a fire. Bags or barrels may become impregnated with it, in which condition they are readily ignitable. In contact with organic or readily oxidizable (combustible) substances it will cause violent combustion on ignition.

Most fires involving sodium nitrate can safely be deadened with water in the early stages; at such times they should be flooded with water. When large quantities are involved in the fire, the sodium nitrate may fuse or melt, in which condition application of water would result in extensive scattering of the molten material and, therefore, care should be taken in applying water to the material after the fire has been burning for some time. It should be stored in a dry place.

Your question states that the hold of the ship is loaded with nitre, and the ship in midstream.

If the hold is fully involved, or largely involved, the best thing to do is to tow the boat to a point where it can be sunk by opening the feed cock. If the fire has not gained much headway, then it might be possible to extinguish it by flooding the hold through the use of fireboats. Due to the extreme danger of fire extending, it would be inadvisable to bring the burning ship up to a dock, or among other shipping.

Charging for Outside Runs

To the Editor:

Can you give me any information concerning the cost of maintaining and operating a piece of motor fire apparatus on a day or hourly basis.

The question has arisen in our city as to what is a reasonable charge for fire protection, on a basis of each fire, for localities outside of the city limits. In other words what would be a fair and equitable basis to charge townships within a radius of 15 miles of the city in which the apparatus is located.

V. P. E.

Answer: There are many pros and cons as to whether Fire Departments, in fairness to taxpayers who pay for fire protection, should answer calls to outside communities without making some sort of a charge for this service. There are Fire Chiefs who are of the opinion that it is a humanitarian act to answer all calls for assistances. Others claim that while they do not like to appear unneighborly, the great number of outside calls received, have necessitated the taking of steps to work out a method that would be just to all concerned.

When departments are called upon to respond to communities outside of the city limits, the protection afforded those within the city, is lessened. Upon answering such calls the department often find that a small grass fire is burning and that the run was wholly unnecessary. Then too, there are people who make their homes outside of the city limits in order to avoid paying for fire protection and Chiefs contend that to protect their property is the same as asking those within the city to finance fire protection for these people.

To prevent being called upon every time a grass fire breaks out in an unprotected section, a stipulated charge has been set in some cities for each run. This has a tendency to decrease the number of calls. The amounts required for outside service vary from $25 up to $150 for the first hour and $100 for every additional hour at the fire.

To insure collection of these charges some cities require that a deposit be made in advance to take care of fire calls, and this method has, to some extent, solved the problem in these cities. After each call a new deposit must be made.

While there are departments that do not make a set charge for answering outside calls, donations are usually made to the department by those receiving aid. This, in a small measure, compensates the department for the wear on the apparatus. Another system is to charge for the gasoline used in making the run.

Small suburban communities unable to maintain a fire department have been able to finance the cost of a truck which is housed within the city. This truck is manned by members of the Fire Department and for this service the city has the privilege of employing the truck for its own use when necessary.

Where a community has its own fire protection facilities but is in need of additional aid in the event of a large fire taking place, surrounding companies usually respond without making a charge for such assistance and this courtesy is reciprocated. In other districts mutual aid systems have been worked out. Under this method, the Fire Departments in a certain locality assist each other and act as one large department. When a fire occurs all the departments under the mutual aid system are notified so that vicinity in which the fire has occured will be properly protected in the event of a second fire occurring.

In the case of factories located in sections not having fire protection, the Fire Department in the nearest town usually responds, without charge, feeling that the employees of these plants help the growth of the city and it is therefore good policy to protect them. There are some cases where factories in districts not having fire protection pay the department of the nearest community for assisting them in the event of a fire taking place.

Fires in Sugar Warehouses

To the Editor:

A sugar company in our locality suffered quite a loss through a fire in one of their warehouses which was completely filled with newly refined sugar. Since then we have responded to a call from a warehouse wherein a goodly amount of newly refined sugar had been stored. Particularly because of our local experience, I would like to know if there is any special manner in which newly refined sugar should be stacked or stored, and if there is anything in the chemistry of new sugar and/or new bags used in sacking the same, which would cause a fire in this class of stock.

K. S. W.

Answer: We are inclined to believe that the fires occurring in sugar storage in your city were the result of spontaneous ignition of the burlap or jute bags used for holding the sugar.

Conditions favorable to spontaneous ignition are as follows:

1. Compact high piling over large areas, without sufficient aisle space, with concentration of weight and close packing of the jute fibers in the lower rows of bags.

2. The use of jute bagging previously oil treated.
3. The lack of sufficient air circulation to remove the heat of oxidation as fast as it is developed.
4. The readily flammable nature of the material.

Such fires might be averted by giving more attention to piling. The piling should be loose, limited in area, with air spaces on all four sides. So long as there is a sufficient circulation of air the height of the piles is apparently of little importance.

There is always a possibility of fires starting from the careless use of smoking materials. "Industrial Fire Hazards," a book by Gorham Dana and William D. Milne, states the following with regard to fire from this source:

"The overhead crane-ways are several in number in a large warehouse. Each crane contains the usual small housing with motor and operator. It is likely that some fires in sugar bags may be caused by careless smoking or dropping of sparks from the motor machinery, which may at once be covered by bags and smoulder for some time before breaking out into fire."

It is our belief, however, that spontaneous ignition due to close packing of bagging, or bags of sugar, can be blamed for the fires you mention.

Castimore Named Chief of Buffalo

William R. Castimore, has been promoted to Commissioner of Fire to fill the vacancy caused by the death of George W. Hedden.

William R. Castimore

Commissioner Castimore was appointed a fireman on April 1, 1899; Lieutenant, June 15, 1907; Captain, December 15, 1913; Battalion Chief, October 1, 1921; Deputy Commissioner, February 1, 1930 and Commissioner of Fire, March 1, 1933.

Ohio Chiefs Will Meet in June

The annual convention of the Fire Chief's Association of Ohio will be held at Mansfield, Ohio, June 13-15. The convention hall and the exhibits will be under one roof with Wednesday afternoon set aside for exhibitors to demonstrate equipment and apparatus. A small charge will be made for exhibit space. The Exhibit Committee consists of Chief Harry J. Callan, Youngstown, Chief Thomas J. McFarland, Marion, and Chief Edward J. Green, Steubenville. The Secretary of the Association is Chief Philip J. Harty, The Youngstown Sheet & Tube Company, Youngstown, Ohio.

Westchester Chiefs Meet at Port Chester

The regular meeting of the Fire Chiefs' Emergency Plan was held at the fire house of the Washington Engine Hose Company, Westchester Avenue, Port Chester, N. Y., on the evening of Wednesday, March 15. Chief Arthur Steuhl, President, opened the meeting by calling upon Fire Commissioner King, of Port Chester, to welcome the members. Captain Baccine, of Eastchester Township, reported that of the questionnaires asking for full information as to equipment of the Fire Departments of Westchester County, seventeen had yet to be received. These departments were urged by the Chairman to pass in the questionnaires as quickly as possible, so that the proposed directory of the fire-fighting forces of the county could be properly compiled.

The Nominating Committee reported the proposed ticket for officers for the ensuing year, to be elected in May, as follows:

For President, Chief James N. Sullivan, Greenwich, Conn.
For First Vice-President, Chief J. C. Rozner, Chappaqua, N. Y.
For Second Vice-President, Ex-Chief Lemon, Mamaroneck, N. Y.
For Third Vice-President, James J. McGuire, Peekskill, N. Y.
For Directors, Chief H. Abbott Griffen, White Plains, N. Y.; Ex-Chief James J. Mulcahey, Yonkers, and Deputy Chief Oscar H. Grab, New Rochelle.

An interesting and instructive address was made by R. Scully, Special Agent, National Board of Fire Underwriters, on incendiarism and the apprehension and conviction of incendiarists. Mr. Scully told of two instances of especially flagrant cases of incendiarism and how these men were brought to justice. His address was very freely discussed.

It was voted to accept the invitation of Chief Chambers and hold the next meeting of the Plan at Yonkers, on Wednesday, April 19.

Chief Sullivan reported that a very important meeting had been held at Stamford, Conn., on March 14, and that a Connecticut organization similar to the Chiefs' Plan was in process of formation for Fairfield County. At this meeting there had been some thirty Chiefs in attendance.

There was considerable discussion on the subject of the value of the fire patrol company.

A buffet supper was served by the Washington Company at the close of the meeting.

Exhibit Committee Named for N. E. Meeting

Edgar E. Ramsdall, Reserve Deputy Chief of the Lewiston, Me., Fire Department, has been appointed Chairman of the Exhibit Committee for the 11th annual convention of the New England Association of Fire Chiefs which will be held in Lewiston on June 20, 21 and 22. Other members of the committee are Chief George C. Bancroft, of Auburn, Me., and Harry J. Lovell, of Portland, Me.

Secretary John W. O'Hearn, of Watertown, Mass, reports than an interesting program is being arranged for the convention.

Ganss, of Gamewell Company, Dead

G. C. Ganss, for sixteen years with the Chicago sales office of the Gamewell Company, and for twenty-eight years with that organization, was accidentally suffocated by carbon monoxide gas in his garage. During his years with the fire alarm company he made a large number of friends.

J. J. McCarthy Made Deputy Chief

John J. McCarthy has been promoted to Deputy Chief of the New York Fire Department and is one of the youngest officers to reach that rank.

Deputy Chief J. J. McCarthy

He was appointed a fireman on September 1, 1913 but was out for a few years during the war, 1917-9. During this time he served as First Lieutenant in the U. S. Army and was assigned as a Fire Marshal of the Port of Embarkation because of his knowledge and administrative ability.

Three years after the war he was promoted to Lieutenant in the Fire Department. On December 1, 1923 he was advanced to Captain and against his own expressed wishes, was retained at Headquarters in charge of the Division of Public Assemblage.

Chief McCarthy was awarded the Administration Medal in 1925 for the best suggestion made that year for improving the efficiency of the Department. His name appears four times on the department's Roll of Merit.

He was advanced to Battalion Chief in 1929. At that time the Fire Department honored him with a dinner at the Pennsylvania Hotel which was attended by more than 1,500 colleagues and friends. Former Mayor James J. Walker, Ex-Chief Kenlon and other well known persons were present.

Chief McCarthy is considered as an outstanding example that the New York Fire Department offers good opportunities for the student type. He advanced from Lieutenant to Deputy Chief in the short term of twelve years. He was No. 4 on the promotion list to Lieutenant, and headed the lists for Captain, Battalion Chief and Deputy Chief. This record has never been equalled in the department.

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the month of March, 1933. These figures, compiled from telegraphic reports are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they are an approximately correct view of the losses incurred. The figures represent loss in thousands of dollars.

Month Ending March 31	Loss in Thousands of Dollars
Detroit, Mich.—Residence of C. E. Dunn, destroyed	25
Alban Manor, N. Y.—Two dwellings on 111th Avenue	25
Fredonia, N. Y.—Business property destroyed	120
Millville, Pa.—Tannery of Greenbaum & Collins, 10 mi. north	80
Sackville, N. B.—Mount Allison Academy destroyed	75
Moline, Ill.—Moline Furniture Exchange building damaged	35
St. Louis, Mo.—Whse. of Carnation Co., Inc., damaged	40
Landrum, S. Car.—Business property owned by Brown Brothers	35
Shenandoah, Ia.—Six buildings damaged	25
St. John, N. B.—Store of Jones Elec. Supply Co., adj. bldg.	25
Kearny, N. J.—Woburn Degreasing Co. on Newark turnpike	160
Glens Falls, N. Y.—Griswold Tavern, 6 miles south	25
Ft. Ethan Allen, Vt.—Government supply house destroyed	40
St. Stephen, N. B.—Seven stores in business section	50
Newberry, S. Car.—Property of A. O. Ruff destroyed	30
Harrisonburg, Va.—Central Drug Co. store, adj. property	25
Carroll, Ia.—Carroll Rolling Mill destroyed	65
Milwaukee, Wis.—Plant of Milwaukee Hosiery Co.	25
Kansas City, Kan.—Repair shops of Armour & Co. destroyed	45
Nashvile, Tenn.—Property of Crow Lumber Co.	35
Midland, Mich.—Calcium plant of Dow Chemical Co. destroyed	80
Winchendon, Mass.—Store of LeMay Furniture Co. destroyed	50
Reguio, Tex.—Ten dwellings destroyed	30
Ticonderoga, N. Y.—Public school building destroyed	400
Shaw, Miss.—Several business establishments	35
Suffolk, Va.—Boykins public school building destroyed	50
Rome City, Ind.—Dairy barn at Kneipp Sanitarium, 1 mile north	25
Henderson, Ky.—Grand Opera House and adjacent garage	200
Alden, Pa.—Property of Alden Coal Co. destroyed	45
Galeton, Pa.—Business block damaged	80
Rochester, N. Y.—Store of S. B. Roby Co.	125
Louisville, Ky.—Plant of Byron Sash & Door Co.	150
Conesus, N. Y.—Business property destroyed	25
Washington, D. C.—J. B. Bourne factory destroyed	25
Norwalk, Conn.—Business block destroyed	50
Somersworth, N. H.—Six buildings destroyed	180
Little Rock, Ark.—Victor Koers building destroyed	65
Brainerd, Minn.—St. Francis Catholic Church destroyed	65
Louisville, Ga.—Property of Louisville Fertilizer & Gin Co.	30
Cairo, Ga.—Plant of Farmers' Peanut Co., Inc., damaged	25
Tarboro, N. Car.—Edgecombe Bonded Warehouse Co. destroyed	125
Springfield, Ill.—Plant of Peter Vredenburgh Lumber Co.	200
Chesterton, Ind.—Swedish Augsburg Methodist Church damaged	45
Sandstone, Minn.—Property of Sandstone Co-operative Mercantile Co.	45
Spring Valley, Minn.—Kummer Bros., wholesale grocery	30
Seneca Falls, N. Y.—Property of M. J. Cosentino destroyed	25
Dennison, Ohio—Warehouse of Dennison Mfg. Co.	25
Aiken, S. Car.—Property of J. O. Williams destroyed	80
New Castle, Pa.—Business and apartment property	45
Clinton, Ind.—Plant of Clinton Milling Co., 16 miles north	25
Ligonier, Ind.—Methodist Church destroyed	30
Sackville, N. B.—Two buildings of Mt. Allison University	65
Memphis, Tenn.—Polyclinic building destroyed	50
Huntington Park, Cal.—High school building destroyed	80
Blacksburg, Va.—Building of Blacksburg Motor Co., Inc.	35
St. John, N. B.—Three buiklings on Union Street	65
Spokane, Wash.—Planing mill of Long Lake Lumber Co.	100
Lexington, N. Car.—Finishing plant of Hoover Chain Co.	70
Fryeburg, Me.—Masonic block destroyed	30
Beverly, Mass.—Rogers block destroyed	100
Pawtucket, R. I.—Business property in Weeden block	50
Collinsville, Ill.—Building housing Fredman Bros. store	125
E. Suffolk, Va.—Main building of National Screen Co.	25
Greenwich, Conn.—Higgins business and apartment building	80
Elba, N. Y.—Store of Earl Hundredmark destroyed	25
Warrensville, Ohio—Women's dormitory at Cleveland Infimary	25
S. Berkeley, Cal.—Six business establishments in Bruns building	25
Moncton, N. B.—Garage of Lounsbury Co. destroyed	35
Tacoma, Wash.—Yacht Argosy, owned by Dr. E. A. Rich	25
Montreal, Que., Can.—St. Jacques R. C. Church destroyed	300
Yakima, Wash.—Sunnyside High School building destroyed	40
Brooklyn, N. Y.—Fourth Ave. business property at 51st St.	70
Hazleton, Pa.—Mechanics' Hall, adjoining property	65
Fall River, Mass.—Ice house of Arctic Ice & Cold Storage Co.	80
Lenoir, N. C.—Plant of Lenoir Mfg. Co. destroyed	40
Lakewood, Mich.—Ten summer cottages, 18 miles north	45
Woodsfield, Ohio—Business and residential property	25
Eldon, Mo.—Several business establishments destroyed	25
Chicago, Ill.—Austin Presbyterian Church destroyed	125
Montclair, N. J.—T. H. Gibbs warehouse destroyed	100
Toronto, Ont.—Warehouse and foundry of W. & J. G. Greey, Ltd.	65
Leavenworth, Ind.—Property in business district	80
Oklahoma City, Okla.—Roundhouse of St. Louis-San Francisco R. R.	250
Lebanon, Tenn.—Business property on West Main St.	25
Conneaut, Ohio—Four buildings owned by Meigs Grow Fish Co.	40
Hamburg, N. J.—Idle Hour Theatre, adjoining property	50
Toronto, Ont.—Central Y. M. C. A. building damaged	40
Mountville, Pa.—Town Hall damaged	25
New Castle Pa.—Garage of Universal Sales Co. destroyed	25
Suffield, Conn.—Ice house of Southern New England Ice Co.	160
Kinston, N. C.—Planing mill of Hines Bros. Lumber Co.	80
Troy, N. Y.—Store of J. J. LeCompte damaged	25
Detroit, Mich.—Property of J. M. Waterston damaged	65
Lawrence, Mass.—F. W. Woolworth Co. building destroyed	100
Montreal, Que.—Trudeau garage and adj. residential property	75
Newark, Ohio—Roberts & Harpster building destroyed	40

Elmira, N. Y., has placed an order for new fire apparatus to be delivered within six weeks.

Smithers Chief of Fond du Lac

George E. Smithers, Assistant Chief of the Fond du Lac, Wis., Fire Department, has been promoted to head of the department. He is forty-three years old.

Chief George E. Smithers

He has been a member of the Fire Department since October 1, 1912. On April 1, 1917, Smithers was advanced to the grade of Lieutenant; on May 1, 1921 to Captain and on April 1, 1926 to the rank of Assistant Chief.

Upon the retirement of Chief James Russell, Jr., in February, Chief Smithers was advanced to fill the vacancy.

Towns Must Aid

All townships that receive fire protection from Coatesville, Pa., must aid in maintaining the local fire fighting equipment, or the service to the respective communities will be discontinued. This order was issued to all towns concerned.

Each of the three companies in Coatesville had its budget cut $500. It is this deficit that must be made up to continue the present standard of fire protection.

According to a suggested plan, the ten adjacent townships that receive aid will pay one-fourth or one-half mill per $100 of their total assessed property valuation.

Hafer Resigns as Chief of Little Rock

Charles S. Hafer, for thirty-one years Chief of the Little Rock, Ark., Fire Department, retired on a pension on his own application.

Chief Hafer joined the department on November 1, 1892, as a hoseman and was soon promoted to driver. He was made Captain on August 1, 1899, and Assistant Chief on November 7 of that year. His appointment as head of the department came on January 1, 1902. Chief Hafter has served in that capacity for thirty-one consecutive years.

Ex-Chief C. S. Hafer

First Assistant Chief Charles A. Burns has been advanced to fill the vacancy. He joined the department as hoseman on August 1, 1898, and served in that capacity until October 23, 1899. At that time he was awarded a medal for saving the life of a person at a fire, and he was promoted to Captain. Burns was promoted to Assistant Chief on January 7, 1902, and he has served at that post ever since. In May, 1926, he studied the work at the Chicago drill tower and upon his return was placed in charge of drills at a newly erected tower in Little Rock.

Blanchester, Ohio, has purchased a Seagrave-Reo apparatus carrying a 400 g.p.m. pump and a 200-gallon booster tank. The same type of equipment has also been purchased by Crestline, Ohio.

The Coos County Firemen's Association was formed at a meeting held at North Bend, Ore., on February 21. Chief L. A. Loomis of North Bend was elected President and Milton M. Craven, Myrtle Point, Secretary. The association meets once a month.

Dougherty Completes 45 Years' Service

Thomas F. Dougherty, Dean of the New York Fire College and Assistant Chief of the New York Fire Department, on March 16 completed forty-five years in the department. He is sixty-seven years old.

Asst. Chief Thomas F. Dougherty

Because of his swarthy complexion, a handle-bar mustache which he cultivated in his early days, and his deep bass voice, he was nicknamed "Tough Tony."

Chief Dougherty is the inventor of the Dougherty bent tip for penetrating between the lath and plaster of a wall, the Dougherty distributor for use in cellar and ship fires, and an intermediate nozzle on water towers. He was awarded the Administration Medal in 1917 and again in 1928. In conjunction with Paul Kearney, he wrote the popular book, "Fire," and several articles that appeared in the *Saturday Evening Post*.

He was appointed fireman on March 16, 1888; Lieutenant in 1895; Captain in 1896; Battalion Chief in 1903; Deputy Chief in 1918, and Assistant Chief in 1927.

New Combination Pumper and Booster Tank

A standard type of hose body provided with a 250-gallon water tank and a high pressure rotary pump is being marketed by the Luverne Fire Apparatus Company, Luverne, Minn., under the trade name of the New Deal equipment. The pump is mounted on the rear platform where it is completely accessible. It is driven by a shaft carried on roller bearings attached to the bottom of the body, and which connects to the power take-off on the transmission of the truck by a double universal propeller shaft.

A pipe line is provided with suitable valves and a 2½-inch suction connection for use in taking water from hydrants through fire hose, or for drafting from cisterns or reservoirs.

The outfit is furnished for any make of truck chassis that has provision for "power take" on the transmission.

Eastern Chiefs To Meet June 23-24

At a meeting of the Board of Directors of the Eastern Association of Fire Chiefs held on April 3, at the Hotel Pennsylvania in New York, June 23 and 24 were set as the dates for holding the annual convention at Harrisburg, Pa. Hotel headquarters will be at Penn Harris Hotel.

The program will be devoted largely to Round Table discussions of current fire department problems, although three papers on important fire department subjects will be included; Those attending the meeting included the following:

Chief Ross B. Davis, President, Philadelphia; Chief Frank Soulé, Secretary, Coatesville, Pa.; Chief C. W. Greenfield, Arlington Works, Kearny, N. J.; Ex-Chief John Kenlon, N. Y.; Chief Harry Francis, New Brunswick; Chief Richard Lee Smith, President, International Association of Fire Chiefs, Pittsburgh; Chief M. M. Tawney, Harrisburg, Pa.; Deputy Chief J. J. T. Waldron, New York City; Fred Shepperd, Headquarters Manager of the International Association of Fire Chiefs and I. H. Case, Chairman of Publicity of the International Association of Fire Chiefs, New York City.

Eureka Advances Johnson

The Eureka Fire Hose Manufacturing Company has placed H. L. Johnson in charge of its Indiana, Ohio, and West Virginia territory to succeed his father-in-law H. F. Pratt with whom he has been associated for many years. The Columbus,Ohio, office of the company has been moved to 1101 Central Parkway, Cincinnati, where Mr. Johnson will make his headquarters.

A testimonial dinner is being planned for Chief Fred Weiss of Hamburg, N. Y., who will retire soon.

Newly Elected Chiefs

The following have been elected to head the Fire Departments in their respective municipalities:

Beverly, Ohio—F. H. Hart
Ogdensburg, N. J.—Amos Pierce
Martins Ferry, O.—Ike Cecil
Georgetown, Conn. — Harry Lindstrom
Fluvanna, N. Y.—Charles A. Sondell
Alpine, N. Y.—Edward Giannuzzi
Carmel, N. J.—Charles Stock
Marlboro, N. Y.—Victor Fromel
Fishers, N. Y.—Charles Smith
Chautauqua, N. Y.—James Powers
Blair, Neb.—Jan Hansen
Barrington, N. J. — Harold H. Houck
Orange, N. J.—Michael McCarthy
L'Anse, Mich.—Henry Sands
Avalon, Pa.—John Speer
Moville, Ia.—Harry Stephenson
Elwood, Ia.—Walter Hartvigsen
Horsham, Pa.—W. F. Sembower
Carrolltown, Pa.—Dallas Keirn
Spooner, Wis.—Henry Neck
Ogilvie, Minn.—J. E. Holmgren
Albany, Ore.—Oliver Butts
Sequim, Wash.—Lloyd Fisher
Roselle, N. J.—George S. Wright
Spangler, Pa.—M. E. Whalen
Gilbert, Minn.—A. I. Lopp
Nashville, N. Y.—Edward Heschke
Piedmont, Cal.—Jack Sullivan
Freewater, Ore.—Jess Everett
Mt. Angel, Ore.—Paul Schwab
Guttenberg, Ia.—Armin Grossell
Independence, Ia.—Carl Frank
Lake View, Ia.—Rudy Sweiter
Allegan, Mich.—H. O. Maentz
Ionia, Mich.—Harlan Eggleston
Genoa, Neb.—Dr. H. A. Reed
New Prague, Minn. — John A. Mickus
Finley, N. D.—R. E. Still
Franklin, N. H.—Edgar H. Wheeler
Inwood, N. Y.—Frank Hicks
Oakland, Ia.—Dr. C. E. Baxter
New Virginia, Ia.—Theo. Irwin
Dubois, Pa.—Patrick B. Dillman
Eatontown, N. J.—Clyde Hayes
Murdock, Minn.—S. C. Hillman
Laurium, Mich.—Gust Preuss
Owensville, Ind.—Louis White
Tribes Hill, N. Y.—Robert Stewart
Howell, N. J.—James Roe.
Pillow, Pa.—Grant Troutman.
Durant, Ia.—Otto Puck
Whitehall, Wis.—Charles Schilke
Jerome, Ida.—Bert Shimmin
Cos Cob, Conn.—Albert Anderson
Portville, N. Y.—N. A. Trenkle
Mt. Sinai, N. Y.—O. F. Coote
Newark, S. D.—Glen Ashley
Rochester, Wis.—Wallace Breckenfield
Iola, Wis.—C. W. Parks
Schullsburg, Wis.—T. F. Lee
Hartford, Wis.—Paul Suelflow
Rio, Wis.—W. O. Klawes
Walworth, Wis.—William Koeppen
Albany, Wis.—Charles M. Dixon
Magnolia, Del.—Harry Wilcutts
Hawley, Minn.—Oscar Gunderson
Kewaskum, Wis.—Harry Schaefer
Apple River, Ill.—F. M. Urnins
Oelwein, Ia.—M. F. Gunderson
Turtle Lake, Wis.—Alec McChesney
Mayville, N. D.—B. T. Johnson
Hilbert, Wis.—Oscar Kasper
Lannon, Wis.—Otto Rossman
Slinger, Wis.—John Feutz
Castle Rocks, Wash.—Ali Kerr
Laramie, Wyo.—J. H. Patrick
Denver, Col.—Frank J. Spillane
Molalla, Ore.—E. R. Wallace
Roncerverte, W. Va.—M. R. Renick
Stone Harbor, N. J.—Joseph K. Weber
Glyndon, Md.—Norman Fritz
Placerville, Md.—Mark Tetrault
McLeansboro, Ill.—C. C. Hassett
Watford City, N. D.—Henry Allen
Ireton, Ia.—F. W. Marienau
Alpena, S. D.—J. D. Funke
Cochrane, Wis.—Fred Meili
Amery, Wis.—L. E. Gren
Cashton, Wis.—H. B. Bohl
Ashippun, Wis.—Alvin Voigt
Galax, Va.—Lance Todd
Mora, Minn.—W. Edgar

Harry Belknap Married

Mr. and Mrs. Fred Anthony, of Washington, D. C., have announced the marriage of their daughter, Freddie Lillian, to Harry Belknap, New England Correspondent of FIRE ENGINEERING and well known in Fire Department circles. The marriage took place on Tuesday, April 4, at Washington.

Neon Tube Type Lightning Arrester

A Neon tube type lightning arrester for the protection of low voltage circuits such as used in fire alarm systems, is being manufactured by the L. S. Brach Manufacturing Corporation, Newark, N. J.

This product is very small and fits in standard telephone arrester spring mountings and is interchangeable with carbon, mica, or carbon porcelain units.

Brach Type Arrester

The arrester consists of a small glass tube containing the electrodes in Neon Argon gas. The electrodes are separated about 3/32 inch. The glass tube is encased in a metal and bakelite holder which forms a protection case. With this type arrester, there will be a momentary glow during a lightning storm, indicating the passing of current.

They are easily tested. When placed across the terminals of an induction coil, an orange-red, blue or violet glow indicates that the device is in good operating condition.

This arrester resumes a normal high insulation after operating, according to claims of the makers, and will maintain clear line, for it is non-grounding and will act as a continuous static drain before the currents build up to dangerous values.

Pratt Goes With Manhattan Rubber

H. F. Pratt is now associated with the Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., and will handle the sale of Manhattan hose in Ohio, West Virginia and Eastern Kentucky. He was formerly with the Eureka Fire Hose Manufacturing Company. He holds the position of Special Representative and will continue to make his headquarters at Columbus, Ohio.

FIRE DEPARTMENT ACTIVITIES

Seattle, Wash., has approved the purchase of a new fire alarm transmitter.

Bids were opened for the erection of two new fire stations in the West End of Galveston, Tex.

John W. Mountjoy has been appointed State Fire Marshal of Montana to succeed W. G. Brooks.

A new record has been established in Cleveland, Ohio. A total of 1,200 men filed applications with the Civil Service Commission for jobs as city firemen. This is an all-time record for the city.

Mike Bauer, eighty-five years old, Chief of Nebraska City, Neb., for twenty-one years, died at his home. He was prominent in the Nebraska Firemen's Association for many years. Two daughters and a son survive.

Edward L. Hill, Chief of the Volunteer Fire Department of Addison, N. Y., for forty years, died at his home following a few months' illness. He was seventy-two years old. He retired as Chief three years ago.

Chief Fred A. Leonard of Taunton, Mass., celebrated his thirty-second anniversary as Chief of the Taunton Fire Department. He joined as a call man in 1882 and became Chief in 1901. He was elected Chief for a four-year term and has been re-appointed continuously since that time.

District Chief Michael J. Shea has been appointed Chief of the Fitchburg, Mass., Fire Department. He was appointed a private on March 18, 1902, permanent private on December 11, 1907, Lieutenant on November 19, 1917, and a District Chief on March 4, 1930. He succeeds the late Chief Henry J. Hyatt.

Two Salem, Ore., firemen who were dismissed, have taken their case to court. They ask the court to review the proceedings of the Civil Service Commission, which allegedly refused to hear their testimony regarding their rights to steady work under the civil service seniority ruling. This marks the first appeal from the Civil Service Commission's acts.

The office of Fire Marshal of Seattle, Wash., has been ordered abolished by the Mayor. This change will eliminate Fire Marshal Laing and twenty-seven inspectors. Chief Corning stated that the city is considering abandoning several fire stations and five complete fire companies. In addition, the firemen are to receive twenty per cent cuts to save the city $330,000.

Three alarms were sounded for a fire which destroyed a motion picture theatre in Toledo, Ohio, on February 10. It was one of thirty fires that occurred in the city in twenty-four hours. Fifteen companies in charge of Chief Fred Meyers responded for duty. The fire was caused by an overheated furnace which was left burning all night for the first time this winter.

George A. Wallace, eighty-five-year-old Chief Emeritus of the Cleveland, Ohio, Fire Department, had his pension restored to $3,900. A month ago the pension was cut to $1,800. Edwin D. Barry, former Safety Director, was incensed at the sharp cut given Chief Wallace and he reminded the Board that the Chief was retired with his full salary pension as long as he lived.

Even firemen in Nashville, Tenn., have icy weather occasionally. The department was called to fight a Sunday morning fire which broke out in a roof over a dry goods store. Salvage covers were spread over all the stock and the damage was reduced to about half of what it would otherwise have been. Icicles hung in clusters from the four stores damaged by the flames, and the front of the building was covered by a sheet of ice.

Contributions will be made to recognized charities by members of the Uniformed Firemen's Association, New York City. The men voted that first grade firemen should contribute one dollar on each pay day, second grade men, seventy-five cents, and fifty cents for third and fourth grade men and probationary firemen. Many employees of New York City discontinued their one per cent charity contribution when their pay was cut, but the firemen voted to continue with their relief work.

The newly organized Burlington County Firemen's Protective and Cooperative Association recently at its annual meeting elected the following officers: President, Francis Watchorn, Burlington; Vice-President, Arthur Mason, Masonville; Second Vice-President, William D. Cowperthwait, Medford; Secretary, George Brown, Florence; Assistant Secretary, Benjamin M. Haines, Moorestown; Treasurer, S. Earl Asay, Mount Holly, and Trustees, Henry Hoey, Beverly; William Ferry, Burlington; George Goodenough, Crosswicks; William H. Spencer, Florence; Mark Lippincott, Marlton; Theodore M. Pennock, Mount Holly; John M. Ingling, Pemberton; Paul Theilman, Riverside. The next meeting of the association will be held at Marlton, April 14.

Massachusetts Chiefs' Club Meets

Robert E. Dillon, Superintendent of the Generating Department of the Edison Electric Illuminating Company, Boston, was the principal speaker at the meeting of the Fire Chiefs' Club of Massachusetts held in the Parker House in Boston on March 15. His talk was illustrated with lantern slide views.

The club presented Chief Frank E. Tracy, of Woburn, Mass., with a half century certificate. The presentation speech was made by Chief George L. Johnson, of Waltham, who paid an eloquent tribute to the long and faithful service of Chief Tracy, who was appointed a call man in Woburn on March 15, 1881; became call Assistant Chief on March 31, 1891; and call Chief on March 23, 1908. He was made permanent Chief on August 12, 1918, and served as President of the Fire Chiefs' Club of Massachusetts last year. He is often affectionately referred to as "The Dean of the Massachusetts Fire Chiefs."

D. Frank Moody, City Electrician, of Lynn, was elected an honorary life member of the club and honorary membership was also conferred upon Ralph Sweetland, Secretary of the New England Insurance Exchange, and Clinton Elwell, of the Fire Insurance Companies' Adjustment Bureau.

Announcement was made that the next meeting of the club would be held on April 24, in connection with the meeting of the State Fire Prevention Committee, in the Hotel Statler, Boston.

HARRY BELKNAP.

New Hampshire Officers Meet

A conference of fire department officials from various cities and towns in New Hampshire was held in the Central Fire Station, Concord, N. H., recently. The meetings were under supervision of Mr. Klinefelter, of the Federal Board of Vocational Training, Washington, D. C., and were arranged by Mr. Dustin, of the New Hampshire Board of Education. The periods were of six hours duration daily and the group was shown the different methods of teaching classes and giving instructions in the proper handling of fires and use of department tools and apparatus. The topics brought up for discussion included fire prevention, building inspection, ventilation, fire control, drill school, evolutions, etc.

The closing afternoon of the conference was used to start the formation of a New Hampshire Fire Chiefs' Club. Chief H. J. Monahan, of Berlin, was elected temporary chairman. He appointed the following as a committee of organization to arrange for dividing the territory into sections for personal interviews with the Fire Chiefs therein: Chief Charles H. French, Concord; Chief Albert C. Melendy, Nashua; and Chief William T. Happny, Concord.

The conference was attended by Chief W. T. Happny, Concord; Chief H. J. Monahan, Berlin; Chief Charles H. French, Manchester; Chief Albert C. Melendy, Nashua; Chief H. B. Whiting, Hampton; Chief L. P. Mansfield, Wolfboro; Chief E. B. Riley, Keene; Chief E. H. Wheeler, Franklin; Deputy Chief M. J. Martin, Concord; Deputy Chief C. G. Howser, Concord; Deputy Chief A. J. Provost, Manchester; Asst. Chief E. W. Williams, Lynn, Mass.; Capt. P. A. Fox, Raymond, N. H.; Chief's Secretary J. A. Brahaney, Nashua; Deputy Fire Warden, R. D. Hutchins, Northwood, N. H.; and B. E. Adams, of Brookline, Mass.

PROPOSED IMPROVEMENTS

Westhampton, N. Y.—Westhampton Beach Fire Dept. requested village board to purchase a new fire truck at estimated cost of $7,000.

Bloomsburg, Pa.—Council planning purchase of new piece of fire apparatus, according to reports.

Anderson, Cal.—At recent meeting of Vol. fire department committee was appointed to investigate possibility of the purchase of a new fire truck. W. O. Donnelly, Chairman of Committee.

Position Wanted

Experienced Fire Extinguisher salesman, with ten years' following who has built up a large volume of business in Virginia, North Carolina and Tennessee, wishes to make change. Will consider small salary and traveling expenses or drawing account. Have own car. Can furnish Bond as well as references. Address: Box 705, c/o FIRE ENGINEERING, 24 W. 40th St., New York.
4-5

Los Angeles, Cal.—Immediate negotiations to secure new quarters for three fire stations damaged during earthquake were authorized by city council. Stations are at Watts, Van Nuys and on 52nd St., near Compton Ave.

Mt. Vernon, Ky.—The purchase of a chemical fire truck and organization of a volunteer fire department urged, according to reports.

Lenola, N. J.—Reports state funds are being raised for purchase of new fire truck.

Cambridge, Mass.—Fire Chief James M. Casey asked city council, in his budget, for $18,000 for purchase of new ladder truck.

Lexington, Mass.—Committee investigating sites for erection of new central fire station, according to reports. Hallie C. Blake, Chairman.

Ludington, Mich. — Preliminary plans have been completed for erection of a $30,000 central fire station, according to reports.

CONVENTION DATES

April 14—BURLINGTON COUNTY FIREMEN'S PROTECTIVE AND COOPERATIVE ASSOCIATION. Next Meeting, Marlton, N. J. Secretary, Benjamin M. Haines, Moorestown, N. J.

April 19—FIRE CHIEFS' EMERGENCY PLAN. Monthly Meeting, Fire Headquarters, Yonkers, N. Y. Secretary-Treasurer, Capt. Eugene Riviere, Fire Headquarters, Larchmont, N. Y.

May—DEL-MAR-VA VOLUNTEER FIREMEN'S ASSOCIATION. 4th Annual Convention, Easton, Md. (Exact date to be decided later.) Secretary, A. C. Bailey, Laurel, Del.

May 15-17—SOUTHWESTERN ASSOCIATION OF FIRE CHIEFS. 6th Annual Convention, Blackstone Hotel, Fort Worth, Tex. Secretary-Treasurer, J. E. Taplin, Blackwell, Okla.

May 18—NEW JERSEY MUNICIPAL SIGNAL ASSOCIATION. Next meeting, Irvington, N. J. Recording Secretary, Frank Dolan, Jersey City.

May 23-26—IOWA FIREMEN'S SHORT COURSE. 9th Annual Course, Ames, Ia. Chief L. R. Morris, Ames, Ia.

May 24—IOWA FIRE CHIEFS' ASSOCIATION. 5th Annual Meeting, Ames, Ia. Secretary-Treasurer, Chief L. R. Morris, Ames.

May 29-31—FLORIDA STATE FIREMEN'S ASSOCIATION. 8th Annual Convention, New Smyrna, Fla. Secretary, F. C. Pfaender, Winter Haven, Fla.

May 29-June 1—NATIONAL FIRE PROTECTION ASSOCIATION. 37th Annual Meeting, Hotel Schroeder, Milwaukee, Wis. Managing Director, Franklin H. Wentworth, 60 Batterymarch Street, Boston, Mass.

June—NORTH DAKOTA FIREMEN'S ASSOCIATION. 49th Annual Convention, Carrington, N. Dak. (Exact date to be decided later.) Secretary, H. L. Reade, Bismarck, N. D.

June—SIX COUNTY FIREMEN'S ASSOCIATION. Annual Convention, Carbondale, Pa. Secretary Fred Zeiser, Shamokin, Pa.

June 5-7—NEW MEXICO STATE FIREMEN'S ASSOCIATION. 11th Annual Convention and Fire College, Las Cruces, N. M. Secretary-Treasurer, T. A. Rosenwald, Albuquerque, N. M.

June 5-9—SOUTH DAKOTA FIREMEN'S ASSOCIATION. 49th Annual Convention and 35th Annual Fire School, Mitchell, S. D. Secretary, M. C. Sullivan, Parkston, S. D.

June 8—NORTHERN INDIANA INDUSTRIAL AND VOLUNTEER FIREMEN'S ASSOCIATION. 28th Annual Convention, Bluffton, Ind. Secretary-Treasurer, G. W. Darr, Columbia City, Ind.

June 8-9—SOUTHEASTERN ASSOCIATION OF FIRE CHIEFS. 6th Annual Convention, Savannah, Ga. Secretary-Treasurer, John L. Miller, Concord, N. C.

June 12-14—KANSAS STATE ASSOCIATION OF FIRE CHIEFS, STATE FIREMEN'S ASOCIATION AND FIRE SCHOOL. Respectively, 17th, and 46th Annual Convention and 5th Annual Fire School, Wichita, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan. Secretary, Firemen's Short Course, E. J. Stewart, Kansas Insp. Bureau, 701 Jackson St., Topeka, Kan. Also the Associations will conduct ten one-day regional fire schools in ten different towns—First one in Chanute, Kan., latter part of April.

June 13-15—FIRE CHIEFS' ASSOCIATION OF OHIO. 16th Annual Convention, Mansfield, Ohio. Secretary-Treasurer, Chief Philip J. Harty, Youngstown Sheet & Tube Company, Youngstown, Ohio.

June 14-16—MARYLAND STATE FIREMEN'S ASSOCIATION. 41st Annual Convention, Westminster, Md. Secretary, George R. Lindsay, Hagerstown, Md.

June 20-21—ILLINOIS FIRE COLLEGE. 9th Annual Fire College, Illinois Firemen's Association, at University of Illinois and Grounds and Tower of Association, Champaign, Ill. Secretary, Assist. Chief Roy W. Alsip, Champaign, Ill. Director, Prof. L. H. Provine.

June 20-22—HUDSON VALLEY VOLUNTEER FIREMEN'S ASSOCIATION. 44th Annual Convention, Yonkers, N. Y. Secretary, Chief Chris. W. Noll, Poughkeepsie, N. Y.

June 20-22—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. 11th Annual Convention, Lewiston, Me. Secretary-Treasurer, Chief John W. O'Hearn, Watertown, Mass.

June 21—NORTHEASTERN OHIO VOLUNTEER FIREMEN'S ASSOCIATION. 60th Annual Covention, Hicksville, Ohio. President, Chief Darrell Williams, Sylvania, Ohio.

June 23-24—EASTERN ASSOCIATION OF FIRE CHIEFS. 6th Annual Convention, Harrisburg, Pa. Secretary, Chief F. E. Soulé, Coatesville, Pa.

June 26-29—COLORADO STATE FIREMEN'S ASSOCIATION. 17th Annual Convention, Estes Park, Col. Secretary, Clinton Turnbull, 303 Jacobson Bldg., Denver, Col.

June 28—CENTRAL WESTERN FIREMEN'S ASSOCIATION. Annual Convention, Miamisburg, Ohio. Secretary, A. Hetzel, Miamisburg.

July—VERMONT STATE FIREMEN'S ASSOCIATION. 43rd Annual Convention, Poultney, Vt. (Exact date to be set later.) Secretary-Treasurer, Spencer Carr, Poultney, Vt.

July 1—TEMISKAMING FIREMEN'S ASSOCIATION. Tournament, New Liskeard, Ont., Can. Secretary-Treasurer, F. E. Thompson, New Liskeard, Ont.

July 13-15—TEXAS STATE FIREMEN'S AND FIRE MARSHALS' ASSOCIATION. 57th Annual Convention, Corpus Christi, Tex., Secretary-Treasurer, Olin Culberson, Edna, Tex.

July 17-20—TEXAS STATE FIREMEN'S AND FIRE MARSHALS' ASsion, A. & M. College, of Texas, College Station, Tex. Director, H. R. Brayton, College Station.

July 18-19—MARITIME FIRE CHIEFS' ASSOCIATION. 19th Annual Convention, Digby, N. S., Can. Secretary-Treasurer, Captain Kenneth J. MacRae, Puggsley Bldg., St. John, N. B.

July 20-22—MONTANA STATE FIREMEN'S ASSOCIATION. 42nd Annual Convention, Havre, Mont. 3rd Firemen's Short Course, to be held at Bozeman, date not yet set. Secretary-Treasurer, D. E. Moser, Bozeman, Mont.

July 24-28—WEST VIRGINIA FIRE SERVICE EXTENSION SCHOOL. 3rd Extension School, University of West Virginia, Morgantown. Secretary, Chief C. J. Powell, Romney, W. Va.

July 24-28—WEST VIRGINIA FIRE CHIEFS' ASSOCIATION. 2nd Annual Meeting, University of West Virginia, Morgantown. Secretary, Chief C. J. Powell, Romney, W. Va.

Aug. 1-3—WISCONSIN PAID FIREMEN'S ASSOCIATION. 26th Annual Convention. Green Bay, Wis. Secretary-Treasurer, William H. Schultz, Sheboygan, Wis.

Aug. 7-9—MICHIGAN STATE FIRE CHIEFS' ASSOCIATION. 8th Annual Convention, Traverse City, Mich. Secretary, George F. Dansbury, Grosse Pointe Farms, Mich.

Aug. 8—STATE FIRE CHIEFS' ASSOCIATION OF VIRGINIA. Annual Convention, Harrisonburg, Va. Secretary-Treasurer, Chief E. H. Rouse, Orange, Va.

Aug. 8 to 11—VIRGINIA STATE FIREMEN'S ASSOCIATION. 47th Annual Convention, Harrisonburg, Va. Secretary, O. W. Dabney, Staunton, Va.

Aug. 15-18—FIREMEN'S ASSOCIATION OF THE STATE OF NEW YORK. 61st Annual Convention, Poughkeepsie, N. Y. Secretary, Fred A. Davis, Fort Edward, N. Y.

Aug. 29-31—DOMINION ASSOCIATION OF FIRE CHIEFS. 35th Annual Convention, Peterborough, Ont., Can. Secretary, Chief James Armstrong, Kingston, Ont.

Sept.—ARKANSAS STATE FIREMEN'S ASSOCIATION. 12th Annual Convention, Eureka Springs, Ark. (Exact date to be decided later.) Secretary-Treasurer, H. D. Compton, Little Rock, Ark.

Sept.—OKLAHOMA STATE FIREMEN'S ASSOCIATION. 39th Annual Convention, Oklahoma City, Okla. (Exact date to be decided later.) Secretary-Treasurer, Charles Slemp, 820 East 19th St., Oklahoma City.

Sept.—NORTHWEST FIRE SCHOOL. 6th Annual Fire School, exact date not set, but probably in September, as usual. University of Minnesota, Minneapolis. Address, Chief Frank W. Fuller, Brainerd, Minn.

Sept. 5-7—KENTUCKY STATE FIREMEN'S ASSOCIATION. 14th Annual Convention, Pikeville, Ky. Secretary, Capt. S. G. Render, 940 Starks Bldg., Louisville, Ky.

Sept. 12-14—WISCONSIN STATE FIRE CHIEFS' ASSOCIATION. 5th Annual Convention, Wisconsin Rapids, Wis. Secretary, Chief Arthur J. Rahn, Two Rivers, Wis.

Sept. 18-19—MISSOURI ASSOCIATION OF FIRE FIGHTERS. 9th Annual Convention. Kansas City, Mo. Secretary-Treasurer, M. J. Mulvoy, 405 City Hall Building, St. Louis, Mo.

Sept. 19-20—IOWA FIREMEN'S ASSOCIATION. 56th Annual Convention, Denison, Ia. Secretary, Paul A. Soener, Independence, Ia.

Sept. 21-22—DELAWARE VOLUNTEER FIREMEN'S ASSOCIATION. 13th Annual Convention, Laurel, Del. Secretary, Sam H. Carson, Dover, Del.

Oct. 2—TEMISKAMING FIREMEN'S ASSOCIATION. 10th Annual Convention, New Liskeard, Ont., Can. Secretary-Treasurer, F. E. Thompson, New Liskeard, Ont.

Oct. 3-5—PENNSYLVANIA STATE FIREMEN'S ASSOCIATION. 54th Annual Convention, Lock Haven, Pa. Secretary, Charles E. Clark, Wayne, Pa.

Oct. 17-19—ILLIOIS FIREMEN'S ASSOCIATION. 47th Annual Convention, Rockford, Ill. Secretary, Assist. Chief Roy W. Alsip, Fire Department, Champaign, Ill.

Oct. 17-19—NEBRASKA STATE VOLUNTEER FIREMEN'S ASSOCIATION. 51st Annual Convention, North Platte, Neb. Secretary-Treasurer, Fred W. Muller, Norfolk, Neb.

A. L. Hilton is Chief of the Daly City, Cal., Fire Department. Through error, John F. Coyne was reported as Chief.

Chief John T. Nicolls of the Malden, Mass., Fire Department has applied for retirement on pension, effective June 1. He is seventy-two years old and joined the department in 1894 as a call man. He became a Captain in 1911, Deputy Chief in 1913 and Chief in 1916.

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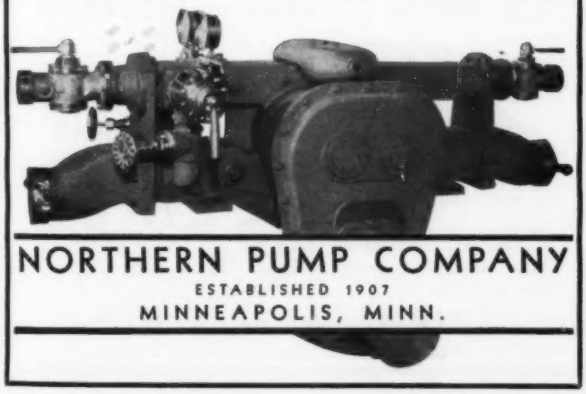

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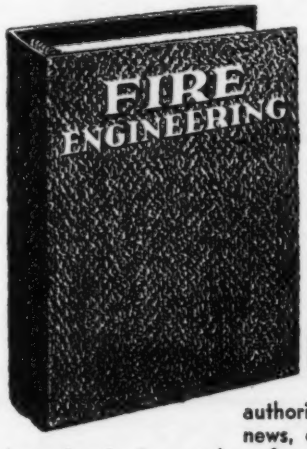

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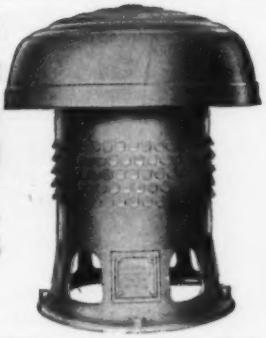

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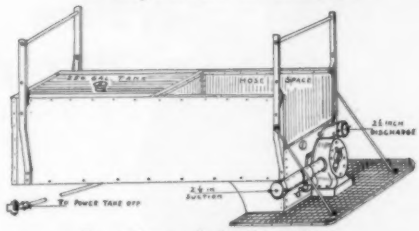

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FIRE ENGINEERING

THE FIRE SERVICE INSTRUCTOR

The Tenth Installment of a Treatise to Aid Those Responsible for Training Men in the Fire Service to Develop a Systematic Type of Teaching

By O. D. Adams

State Director for Vocational Education in Oregon and Prof., Industrial Education, Oregon State College and

Edward L. Boatright

Battalion Chief, Portland, Ore., Fire Department, and Director, Portland Fire College

Chapter IV (Continued)—Helps in Teaching

Changing the Name of a Fraction

Reducing a Fraction: When we change the terms without the numbers. For example, 3 is a common factor of 12, 15 and 39.

$$\frac{1}{2} = 2/4 = 4/8 = 8/16 = 16/32$$

This is called reducing a fraction to higher terms, while the following is called reducing a fraction to lowest terms:

$$88/96 = 44/48 = 22/24 = 11/12$$

We see that 11/12 cannot be reduced any lower because we cannot divide the numerator of 11.

Factors: The numbers which multiplied together make another number are called the factors of that number, for examples: $2 \times 2 \times 2 \times 11 = 88$.

These were the factors used in reducing 88/96 to 11/12.

Prime Number: A number like 11 which has no factor except itself and one is called a prime number.

Prime Factor: A factor which is a prime number is called a Prime Factor.

Common Factor or Common Divisor: A factor of two or more numbers is called a Common Factor or a Common Divisor of the numbers. For example, 3 is a common factor of 12, 15 and 39.

Cancelling Factors

In making a spring leaf, a blacksmith found that he must use 8/12 of a piece of spring steel. This seemed to him an awkward fraction to use, so he proceeded to reduce it to a simpler fraction.

$$8/12 = \frac{8 \div 4}{12 \div 4} = \frac{2}{3} \text{ Lowest Terms.}$$

By cancelling he could have found the lowest terms in less time.

$$\frac{\overset{2}{\cancel{8}}}{\underset{3}{\cancel{12}}} = \frac{2}{3} \text{ Lowest Terms.}$$

$$\frac{\overset{3}{\cancel{9}}}{\underset{4}{\cancel{12}}} = \frac{3}{4}, \quad \frac{\overset{1}{\cancel{12}}}{\underset{3}{\cancel{36}}} = \frac{1}{3}, \quad \frac{\overset{11}{\cancel{22}}}{\underset{15}{\cancel{30}}} = \frac{11}{15},$$

Reducing to an Improper Fraction

A. has a piece of material $4\frac{5}{8}$ yards long and 1 yard wide, he wishes to cut this material into strips 1 yard long and $\frac{1}{8}$ yard wide. How many strips will he have?

Since $1 = \frac{8}{8}$ we see that $4 = \frac{4 \times 8}{2} = \frac{32}{8}$

Therefore $4\frac{5}{8} = \frac{32}{8} + \frac{5}{8} = \frac{37}{8}$

37 strips can be cut from the material.

Fire Alarm Systems

Study Bulletin—Firemen's Course

(*Note*: Part of this Study Bulletin has been omitted.)

The alarm signal system is a very vital part of any fire fighting organization, for even the most highly trained men, the best apparatus and equipment and the most adequate water system all start their fight at a great disadvantage unless they get into action very soon after the start of a fire.

It is not sufficient that members of the Fire Department themselves understand the different methods of sending alarms; such information should be common knowledge to all citizens. Members of the department can do much to bring this about.

The prime object of a fire alarm signalling system is to transmit an alarm of fire to the fire fighting force within the shortest possible time after a fire is known to exist, and the best efforts and ingenuity of skilled engineers have been brought to bear on this vital question of saving time in the transmission of alarms.

It is obvious that a fire may be more readily checked in its incipiency than after it has made headway; therefore, no matter how efficient a fire department may be, it will fail in the achievement of its purpose if not supplemented by facilities for obtaining knowledge of the exact location of fires without loss of time.

The fact that human life and property of incalculable value depends upon the rapid and accurate transmission of alarms to the fire department makes the fire alarm system one of the most important of all emergency signalling services.

(*To be continued*)

Ex-Chief Charles E. Swingley Honored

Charles E. Swingley, formerly Chief of St. Louis, Mo., was honored by the St. Louis *Globe-Democrat* which published as a leading article in its magazine, "Fighting Fires in Early Day St. Louis."

Chief Swingley is now eighty-three years old. He was a member of the department for about fifty years, more than half of which he served as Chief. When he relinquished this post, he became Director of Safety. But he resigned this position because he believed it required the attention of a much younger man.

The Dedication of a New Fire Station in Medford, Mass.

A number of city officials and officers of Fire Departments assembled at Medford, Mass., to witness the formal opening of a new fire station. Music was furnished by the Metropolitan Firemen's Post Band of the American Legion, Boston.

FALSE ALARMS

DECISION MADE

The clerk of the haberdashery store ask the customer:

"Do you prefer a green necktie or a red one?"

The fireman who had been wearing the customary black tie for several years said, "I can't say."

"Shake, old man," said the clerk, "I'm married too."

On the old fashioned, narrow highways, just wide enough for two cars to pass, many a time a couple of cars would collide. But now they're building highways much wider, enabling three or four cars to smash at one time.

POSSIBLE RIFT

To be a member of the volunteer Fire Department, was an honor that was not to be taken too lightly. Such members sported special emblems on their automobiles and other equipment. When one of the select called on his girl, he remarked:

"I'm getting a new siren for my car."

"Oh gee, Herbie, does that mean it's all over between us?"

Then there is the fellow who started with a shoe string and worked his way up—and got his face smacked.

HEAVENLY BLESSED

The city had a problem of what to do with its unemployed. It had difficulty in finding relief work for them. Two of this class were detailed to do odd jobs at the Fire Headquarters and clean up the station. As one worked he remarked to his friend:

"I only worked three days last week."

"Gee whiz," said the other, "I wish I could find a steady job like that."

A "sweet young thing" who had been reading the health department's weekly reports thought that "Total" must be an awfully malignant disease, as many die of it as all the rest put together.

COLLEGIATE

"College training is certainly a wonderful thing," mused the Chief to a group of friends. "Take the case of Gerrity. I sent him for a spell at the New York Fire College. Now you should see him!"

"I suppose you'd hardly recognize him," said one.

"No," answered the Chief. "He hardly recognizes me."

In the spring a young man's fancy turns are caused by one-arm driving.

ACCOUNTING PROBLEM

This is not a fire story but it is too good to keep. An office manager received a letter from his home office which read:

"Effective May 15, please lay off the young ladies in the Accounting Department."

And the poor fellow is still trying to figure out what was meant.

A fellow who is first on line waiting for a ball park to open is a lot like a fellow who is first on line waiting for a bank to open. The only difference is that the former sits on a box and eats sandwiches and the latter just sits on a box.

BUMPED OFF

A phrenologist rented an empty store and announced that he was ready for business. Two men coming from the station, after the new platoon had checked in, stopped to read the signs.

"Why don't you go in?" remarked one to the other in a spirit of jest. And so Tim went in.

The phrenologist passed his fingers lightly over Tim's head and said:

"This is the bump of inquisitiveness."

"That's right," said Tim. "I was up on a ladder and I peeked in."

Jim's girl is like the drink of the gods—everybody's nectar.

STRONG ARMED

Fire had broken out in a store in which there were many small articles of value. A kind friend in an office building offered to keep the precious stones and objects of art in his safe until the store damage could be repaired. A thief heard of this and broke into the office. He was arrested and brought to trial.

"Prisoner at the bar," said the prosecuting attorney, "it has been proved that you entered the building. You tore up a huge safe and lowered it out of the window to the ground. Furthermore, you tore the door of the back entrance to the building off its hinges. What is your answer to that?"

The prisoner shrugged his shoulders.

"I guess I did it in a moment of weakness."

The British correspondent who says that laws aren't enforced in the United States ought to leave his car by a hydrant in an American city.

UPWARD TREND

Around the village grocery store, a group of the natives who had nothing else to do, were discussing the fortunes of all who lived in the village or who had lived there and went to other parts to seek their fortunes.

"Just take the case of Charlie Ransom," said one. "He became wealthy through a sudden upward movement in oil."

"Which oil stock did he buy?"

"He didn't buy any oil stock," he was informed. "A rich old aunt tried to start the kitchen fire with a can of it."

Some credit prohibition with taking the free lunch out of the saloon and placing it in the breadlines.

Deputy Chief: "Whatta ya mean comin' into this office in such an outfit as that?" Offending Rookie: "Well, sir—the boys said you'd probably eat the shirt offa me, give me a cleanin', and that soft soap didn't go with you. So, I came prepared."

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12 Banners, Trumpets, etc.
13 Battery Jars
14 Battery Zincs for Fire Alarm Batteries
15 Bells, Fire Alarm, Municipal
16 Body Equipments
17 Boxes, Gongs, Reels, Registers, Fire Alarm
18 Brakes, Air
19 Brake Linings
20 Brooms, Fire
21 Building Materials, Fire Retardant
22 Caps, Firemen's
23 Chains, Non-Skid, Fire Apparatus
24 Chassis for Fire Apparatus
25 Chemical Engines and Tanks
26 Chimney Fire Fuses and Compounds
27 City Service Trucks
28 Coats and Suits, Firemen's Quick Hitch
29 Combination Chemical and Hose Cars
30 Cutting and Welding Equipment, Blow Torch
31 Cutting and Welding Equipment, Electric
32 Deluge Sets
33 Door Openers, Fire Station, Automatic
34 Electric Light Plants
35 Extinguishers, Calcium Chloride
36 Extinguishers, Carbon Dioxide
37 Extinguishers, Soda-Acid
38 Extinguishers, Carbon Tetrachloride
39 Extinguishers, Foam
40 Extinguishers, Powder
41 Fire Boat Nozzle Equipment
42 Fire Department Supplies, General
43 Fire Exit Devices, Door Opening
44 Fire Alarm Posts
45 Fire Escapes, Portable
46 Fire Escapes, Rigid
47 First Aid Equipment
48 Flare Lights
49 Flashlights, Hand
50 Flood Lighting Equipment
51 Foam Generating Apparatus
52 Foam Liquid for Extinguishers
53 Gas Masks and Respirators
54 Gas and Smoke Helmets
55 Gas and Smoke Generators
56 Goggles, Firemen's
57 Helmets, Metal, etc.
58 Hose Bridges
59 Hose Carts, Reels and Racks
60 Hose Clamps
61 Hose, Fire
62 Hose, Chemical
63 Hose Holders
64 Hose Jackets
65 Hose Standardization Tools
66 Hydrant Draining Pumps
67 Hydrants, Fire
68 Jacks for Fire Trucks
69 Jacks, Shoring and Prying
70 Ladders, Fire
71 Lightning Arresters
72 Motorcycles, Fire Dept. Equipped
73 Nets, Life
74 Nozzles, Pipes and Miscellaneous Brass Goods
75 Packings, Pump
76 Pads, Pole Hole
77 Paints, Fire Resisting
78 Priming Ether, Motor
79 Pumping Cars, Standard
80 Pumping Cars, Foam
81 Pumps, Fire Apparatus
82 Pumps, Fire Service, Stationary
83 Pumps, Portable for Fire Protection
84 Record Books, Fire
85 Relief Valves
86 Reviving Apparatus, Oxygen
87 Rubber Clothing
88 Salvage Covers
89 Searchlights
90 Shingles, Fire Retardant
91 Shirts, Firemen's Special
92 Sirens, Apparatus and Chiefs' Cars
93 Sliding Poles
94 Soda and Acid Chemicals
95 Spark Plugs, Fire Apparatus and Motorcycles
96 Squad and other Auxiliary Cars
97 Sprinkler Head Shut-Offs
98 Sprinkler Supervisory Service
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100 Sprinkler Systems, Automatic Water
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103 Tarpaulins and Fire Blankets
104 Tetrachloride Chemicals
105 Thawing Equipment, Hydrant
106 Tires, Fire Apparatus, Pneumatic, Solid, Cushion and Non-Skid
107 Tractors
108 Traffic Clearing Systems
109 Triple Combination Pumping Cars
110 Uniforms
111 Water Towers
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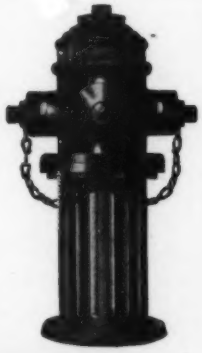

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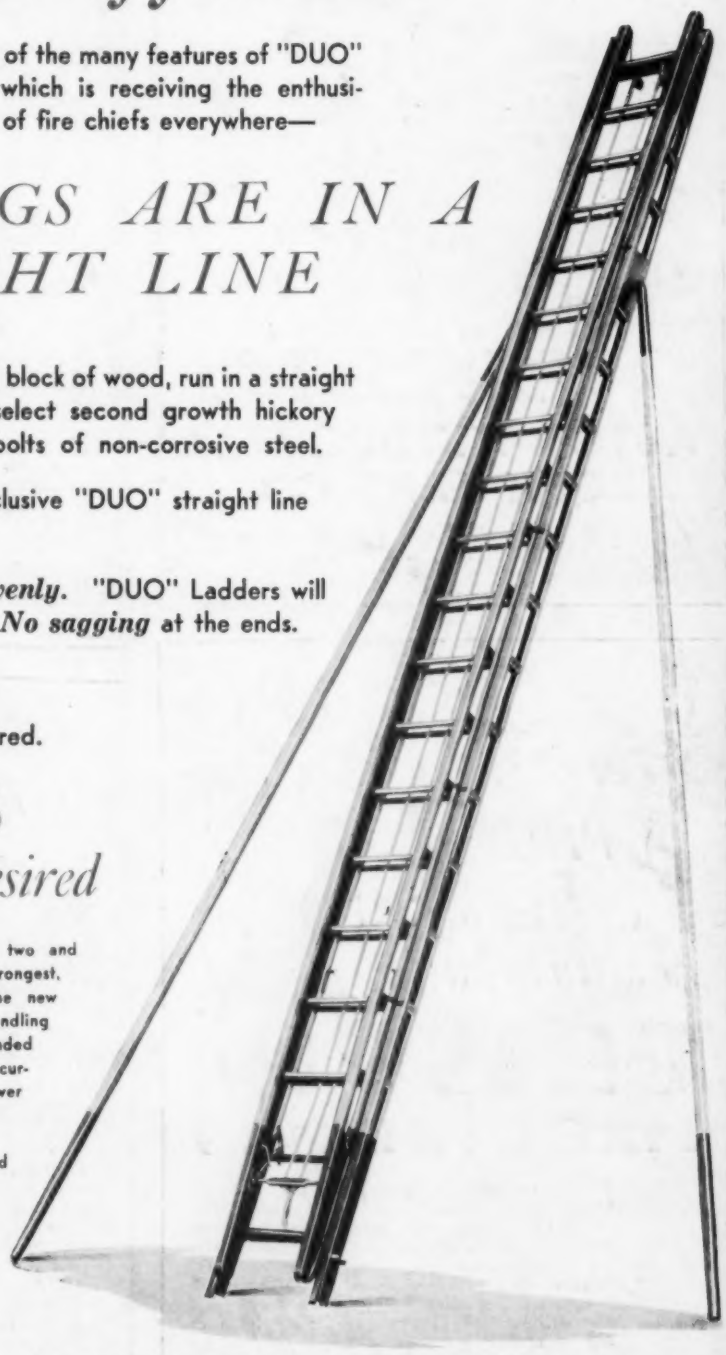

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